CLOUDFEST

TREND REPORT 2019

Conference Notes

REGISTRYOFFICE

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Hyperscaling within the Domain Name System
Andy Simpson

From its inception, the Domain Name System (DNS) was designed to scale. Domain names are a foundational component of how many cloud services customers help end users engage with their products. Proposed and created by Paul Mockapetris in 1983, the DNS has recently come into the crosshairs of disruption as debate rages on whether or not it should be replaced in an age of rapid network onboarding of smart- and IoT devices. We know the DNS is stable, but can it scale the way we need it to?

Not only does the DNS scale, but it can also hyperscale... and hyperscale it must: Domain name registrations have grown by approximately 11.7 million, or 3.5%, year over year— Q3 of 2018 closed with around 342 million domain name registrations across all TLDs (top-level domains, for domaining newbies), and roughly 45% of those were tried-and-true .COM and .NET registrations. During his CloudFest 2019 keynote, Andy Simpson, principal data scientist at Verisign, explored how one can use domain names in new customer engagement strategies. Verisign is the back-end registry for .COM and .NET, among others—it is a global provider of domain-name registry services, security,

and internet infrastructure; enabling internet navigation for many of the world's most recognized brands. Simpson shared sources for new customers, as well as details on the types of domain names that might help a customer engage with the services that a provider offers.

Simpson has made the study of domain names his priority. "We're responsible for 151.7 million domain names." said Simpson. "We get to be part of an ecosystem that's been designed from the bottom up to hyperscale!" The entire system was designed to spread load over a large area—an area the size of the planet. SImpson noted that end users don't think of the DNS at all: they only think of what they do with it. It becomes a chicken-and-egg scenario, since users think in terms of "I want to buy a domain name" or "I want to build a website"; and both of those desires are intrinsically linked.

The first thing Verisign looks at, said Simpson, is what models business-owners will go through as they plan what they want to do online. From there, he said, "The sky's the limit." Still, the various use-case roads tend to converge: even if they start with an existing platform like Etsy or Facebook, eventually they'll want a domain name.

"The trend here is actually kind of boring," said Simpson. "The trend here is stability." Millions of customers per year buy a domain name and launch a website in short order. So which comes first, the chicken or the egg? "Who registers a domain name significantly

KEY CONCEPTS

- Domain names
- CSPs
- Branding

TAKE ACTION

- Learn about your customers' needs: business, social, and cultural
- Pitch your toolsets in terms of seamless adoption of e-commerce
- Keep your finger on the pulse of the rapidly-changing social media landscape

ANDY SIMPSON

Principal Data Scientist at Verisign

Andy Simpson is a Principal Data Scientist in Corporate Strategy and Analytics at Verisign. He is responsible for studying end user demand for domain names with a focus on the impact of emerging global markets. Andy has also spent time evaluating security and stability threats to the DNS root zone. Before moving into broad scale domain usage analysis, Simpson contributed to registry, registrar and domain aftermarket systems and helped Verisign develop a Big Data technology stack based on Apache Hadoop.

before they start an actual business on it?" posited Simpson. Then, he said, you can start looking at data. There's a significant, meaningful number of people who buy a domain name a few months before they start building a site, he added.

What this shows is that a large number of individuals are still in the brainstorming and experimental phase of their online strategy. At that point, said Simpson, the service provider runs the risk of scaring them off! He noted that 16% of customers are indeed overwhelmed (or distracted) and walk away from that name-to-website journey. "The customers who take their time are a little more serious," said Simpson, and those customers have a much higher renewal rate.

Once you have that customer, you then become the vendor who educates them about the next phase in building their web presence. Then your own toolsets become part of a potential path forward: "Once you sell them that name, you can help them see what that next step looks like," he said.

But what drives a business to decide whether to go online? This sounds like a no-brainer, since more than half of the world is already online (a highly significant number, considering the staggering inequality of wealth distribution); but there are decades-old businesses that haven't done that yet. The pull from consumers is one driver, said Simpson: your audience simply demands it. This means business-owners need tools that they understand. This is a huge opportunity for CSPs, since those business-owners would most likely not be web developers! Online retail is taking shares from traditional retail. 17.5% of commerce will be online by 2021, said Simpson, which is highly significant—and a huge opportunity for cloud-industry companies. "Good news for all of us: they do get it," said Simpson—retail professionals understand this trend as well. 80% of the time, businesses with a website are using another channel such as eBay, Amazon, or Shopify, to sell their goods—and 20% don't do so yet. This industry can empower businesses to thrive in tomorrow's retail landscape by providing them with tools they understand how to use.

There is an educational barrier here: globally, 79% of internet users are on social media, said Simpson, so they don't immediately know why they need a website... isn't that, like, so Nineties? "Geographically and generationally," added Simpson, "[social media activity] does vary." Meanwhile, the number of social accounts per user is trending upward as well. "Social media is empowering end users in a way that they can feel confident putting content online," said Simpson, which paves the way for launching one's own website. Not every account is useful and therefore used, said Simpson, and businesses need to understand how that landscape evolves. (MySpace, anyone?) "What's popular in social media changes," said Simpson. "If you rely exclusively on social media, you fall victim to the decisions they make." End users actually favor interacting with a brand via that brand's own website. European businesses report having a website more often than they claim that they're using social media, said Simpson, but that gap is closing—which speaks to the increasing use of social media, rather than a decline in website adoption."End users report that they trust branded websites," he said.

Verisign finds that .COM still resonates across the globe, said Simpson, noting that the TLD conveys trust and stability. What types of names are people buying, though? Simpson finds that new domain name registrations are consistently comprised of exclusively keywords. (For example, cloudfest.com!) Customers expect to search for a keyword and find a URL that reflects that, said Simpson: "This is what end users are accustomed to visiting."

More than 60% of these names consist of two or more keywords, he said. Working with keywords, said Simpson, is a brainstorming act in itself, helping a business craft its vision through the refinement of its online identity. "The process of counselling an end user on the domain name that makes sense to them is a relatively complicated one," he cautioned. That will be affected by language and culture, getting to the heart of each unique market. (One of the CloudFest 2019 Hackathon projects looked at standardizing names occurring in less-often-used languages.)

Businesses need to be online to meet their consumers, said Simpson; and this industry needs to do whatever it can—with every tool at its disposal—to make that happen for them.

Insights and Inspiration with Bhavin Turakhia: From Founder To Billionaire

Bhavin Turakhia

"I'm a problem-solver. When I see a problem, I can't do anything but try and solve it," said Bhavin Turakhia, an icon in the cloud industry. Turakhia has started 12 companies, including Flock, Radix, CodeChef, Ringo,, Media.net, and Zeta—starting with a hosting company called Directi, co-founded with his brother Divyank when he was just a 17-year-old kid growing up in India. He grew that initial company for many years before making his first transaction, and has made many successful transactions since. Bhavin is a problem solver, leader, and visionary with tremendous insights to share about leadership styles that work in the tech space, and how our industry can develop real business strategies that produce results.

Turakhia took the stage at CloudFest 2019 to share a quick high-level SWOT analysis (strengths, weaknesses, opportunities, and threats) of today's Cloud industry, followed by a quick fireside chat with i2Coalition's Christian Dawson to explore the lessons that Cloud companies can take away from his experiences.

Strengths: What characteristics of the business or project give it an advantage over others?
"One of the things I love about this space," said Turakhia, "is that the people at this conference control 90% of the internet!" The Cloud industry influences the online journey of every single business in the world. Just last year alone, 60 million domain names were added to the internet, he said. So, you know, there's that.

Weaknesses: What characteristics of the business or project set it at a disadvantage relative to others?
... But don't get cocky! Consumers and competition have changed, said Turakhia... but we have not changed. New features have been added, but they're not presented differently to customers. "That's a weakness we need to fix," implored Turahkia. We have an amazing strength in our access to the whole planet's customer base, he said, but when designing, design for differentiation.

KEY CONCEPTS

- SWOT
- User experience
- Entrepreneurship

TAKE ACTION

- Look to the value you want to create, for users, the community, the world
- Don't get too complacent: deeper-pocketed competitors can unseat you, and changing consumer needs can leave you behind
- Innovate to differentiate
- Surround yourself with a passionate team: nobody can do it alone

BHAVIN TURAKHIA

CEO & Founder of Flock

Bhavin Turakhia has been in the domain name industry for over 20 years, and has achieved success that most of us could only dream of. His is a fascinating story, starting out as a young person in India, and bootstrapping a small web hosting startup that he turned into a billion dollar empire. Bhavin is a problem solver, leader, and visionary with tremendous insights to share about leadership styles that work in the tech space, and how our industry can develop real business strategies that produce results. domain aftermarket systems and helped Verisign develop a Big Data technology stack based on Apache Hadoop.

Opportunities: What elements in the environment can the business or project exploit to its advantage?
"We [in the cloud industry] are at the genesis of every single business idea," said Turakhia. (So, you know, there's that.) When any entrepreneur has an idea, he said, they go straight to grab a do-

main name—even adjusting their new company's name to match the domains available. "We're there at the beginning," he said, "before they hire their first employee. Before they register their trademark," never mind before they go through those young-company growing pains on the path towards scale.

60% of domains that have existed for three years or more have active MX (mail exchange) records, said Turakhia, which means that email still matters. Active users will leverage your email offerings, but they'll forward that service to their Gmail, for example, if the Google UX is better than yours.

Threats: What elements in the environment can cause trouble for the business or project?
"Our customers have dramatically changed," said Turakhia. From Boomers to Millennials and Generation Z, consumer behavior has evolved in fundamental ways. "There was a time when ownership was important: you bought a car and it was yours. No longer, he said: "We no longer own stuff—we rent stuff!" Think of Airbnb, Car2Go, and so on. We've moved from an ownership model to one of access.

Also, users are demanding a great user experience, said Turakhia: "Software no longer has to just be useful, it has to be beautiful! It has to be elegant! It has to have soul!"

Users are also making decisions based upon their own research. (And yes, the cloud has engineered its own threat on this point, thanks to Yelp, TripAdvisor, and obviously Google.) "Consumers are self-reliant," said Turakhia. This led to the rise of inbound and content marketing. Brands are helping customers help themselves—ideally toward those brands' own offerings.

Competition has also changed: back when Turakhia started out, hosting companies were selling the same stuff. The primary USP was pricing, with language also coming into play for servicing local markets. "It's no longer my cPanel versus your cPanel," he said, as CSP offerings get deeper and more differentiated. User experience, as mentioned above, is now an active battleground.

Lessons from a Serial Bootstrapper
"Focus on value, not on valuation," Turakhia advised the crowd. "Valuation is a side effect, a consequence." He added that each of us has a moral obligation to make an impact proportional to our potential.

Turakhia said that he values his team above all, and that he loves how they consistently prove him wrong as his companies evolve. While entrepreneurs need "a healthy dose of delusion", he said, the tools to validate and prove out what you're doing are indispensable.

"Never give up!" he added. "The notion of failure is just an experience that taught me that something doesn't work," he said, which only brings him closer to something that does work.

Let's Innovate! Multi-Verse Perspective of the Future Today with Dell Technologies Multi-Cloud

Patricia Florissi

How is multi-cloud impacting individuals and societies? Patricia Florissi, Vice President, Global CTO for Sales and Distinguished Engineer at Dell Technologies, shared how her team's vision is shaping our future, innovating for the best, and building our next generations, today.

Onstage at CloudFest 2019, Florissi discussed how exploring new innovative and technological heights, creating unique new services, and collaborating with Dell Technologies' businesses can transform customer experiences.

"We are in the dawn of a new era," said Florissi, where technology gives the vision-impaired a sense of sight, brings clean water to those who need it most, and helps cars to drive themselves. We experience life in the digital universe, she said, where our technology enhances how we perceive and interact with the world.

Even our cores have left the building, said Florissi, as we move from the datacenter to the cloud, the edge, and even the fog.

The edge cloud, the private cloud, and the public cloud have to leverage some sort of consistency in exploring cloud economics, said Florissi. We want to have all three versions enjoying the same scalability and diversity, she said: the digital universe is a multi-cloud experience.

"The truth is that we're living in an era of transition," said Florissi, and we'll have to deal with existing and emerging applications at the same time. Which do we deploy? What apps live in the cloud and which should be consigned to the datacenter... or simply to the dustbin?

We're buffeted by technological forces in our digital universe, said Florissi. This defines how we will differentiate in the future. Looking at the IoT, let's focus on the "Things": over a billion sensing objects will come online before long, and start forming systems that talk to each other... a system of systems. "If you look at the car of the future, that is shared, that is electrified, that is automated and connected," she said, "it has a system of systems inside!" Deep learning and AI aren't new, she said, but now they're all the rage because we finally have the computing capacity and dataset sizes to make AI and deep learning more effective and relevant to daily life. Of course, these things demand some very serious computing capacity.

"You have this continuum of the edge cloud, the private cloud, and the public cloud... and we're exploring quantum computing," she said. This is the situation that your customers are experiencing: the datacenter has sprawled all the way to the public and

KEY CONCEPTS

- Multi-cloud and edge computing
- Agile development
- Partnership

TAKE ACTION

- Examine your existing stack with an eye towards sustainability and growth
- Explore partnerships with platforms and services that can help you scale up without exponentializing the effort you have to put in
- Dare to imagine a future, and build your stack to help you realize it

PATRICIA FLORISSI

Vice President, Global CTO for Sales & Distinguished Engineer at Dell Technologies

Patricia Florissi is a technology thought leader and innovator, with 20 patents issued and more than 20 patents pending. She is VP and Global Chief Technology Officer for EMC Sales, and holds the honorary title of EMC Distinguished Engineer. Florissi is the creator, author, narrator, and graphical influencer of the educational animated video series EMC Big Ideas. Patricia is passionate about strategic geographical expansion, focusing on emerging countries, such as Angola and Nigeria in Africa, having traveled extensively to interact with customers and present at international forums. Florissi is devoted to mentoring and to increasing women's presence in STEM.

private clouds. Those clouds are managing diverse and multi-tier applications. Furthermore, companies of all sizes are chasing those technological forces in order to differentiate. 93% of Dell's customers report that they'll end up using more than one cloud provider. This, said Florissi, is a recipe for complexity as you introduce silos. After all, what happens when one provider's bugs or operational challenges affect the apps running on another provider's platform? "This leads to multi-cloud chaos," she said, "and that's where we are at right now!"

The size of the hybrid cloud market is projected to pass the $90-billion mark in 2021, according to Markets and Markets—so within that chaos lies opportunity for those approaching the scenario with clear eyes.

Florissi said that you start with a clean slate and lay out a clear cloud strategy: do you want to offer IaaS, CaaS, and PaaS? Okay, but you have to operate under certain constraints. You better be agile, she said, so you can innovate at speed. Next, you need cybersecurity. Then of course there's cost: you need to be competitive in pricing, and your operating budget has to be optimized for the resources you really need to use. Your cost model also needs to be sustainable, she added: "designed for the future." Your cost structure needs to change in a timely way as well, without requiring you to re-engineer your underlying architecture.

The native public cloud strategy, such as with AWS, Microsoft Azure, or Google Cloud, has you operating one or more cloud setups, albeit in separate silos. Or you can go to a hybrid cloud. The hybrid cloud means that, regardless of what you have underneath, you have a single operating stack to deliver consistency to your environment. "91% of our customers responded that they will continue to invest in the private cloud," said Florissi, and 83% responded that they want consistency in their experience. Therefore, she said, Dell is combining the Dell and VMWare strategies into what it calls the Dell Technologies Cloud Platform to unify the experience across the edge, private, and public clouds. "At the same time, we deliver a consistent set of operations," she added, along with a consistent set of value-added services.

Coming up, she said, is Project Dimension, which gives you SDDC (software-defined datacenter) simplicity for your own servers and edge setup—that is, the ability to manage and provision your private and edge clouds as a service. Dell Technologies can help you function consistently across all clouds, she said, including interfacing with the hyperscalers. "This is the broadest ecosystem for cloud delivery," said Florissi. The entire Dell EMC portfolio has been made cloud-ready, she added, so you can view the cloud as just another tier of your multi-tier storage, as well as another app-development platform; all kept safe through managed security services. Unifying through Dell can help you increase agility and efficiency, as well as reduce the risk of technical debt and falling prey to bugs or attacks.

"Dell operates as part of an ecosystem," said Florissi: "We run the most modern infrastructure today because of our partnerships. Because we work and innovate together, we can deliver better services to you."

Florissi left the crowd with a question: Do we want to look at life as we see it... or do we want to exercise the unlimited creativity that technological forces enable? "Only together can we change the world," said Florissi: "Let the transformations begin!"

Using Data To Achieve Excellence In Speed And Precision
Graeme Hackland

Graeme Hackland is no stranger to the need for speed when it comes to moving data around—he's the CIO of Williams Racing, a leading Formula 1 team and engineering company. Hackland spoke at CloudFest 2019 to share some of the amazing data science that goes into achieving Formula 1 racing success.

Coming from the racing world, Graeme understands the importance of speed and precision in achieving excellence. Hackland discussed how data is collected during a race weekend, and how that data is then used to define strategy. He also talked about how the cloud has changed what a datacenter at a Formula 1 race track looks like, and what components and services a world-class racing team CIO leverages in helping his team drive towards the win.

Williams started in 1977, said Hackland: "they were a very small team, taking on the bigger teams," and today's mission is to repeat that. Furthermore, Williams uses the tech it develops to forward other industries: did you know that the current F1 car is hybrid-electric? That same Williams battery tech powers those foldable bikes you might see on the streets of your city. Even the curve of the F1 car's wing has been applied to fridges: an aerofoil keeps cold air in!

Data management is all about making the right decision more often, said Hackland: William's path to success began when it started using data. Back in the day, it took 20 minutes to download one lap's worth of data... today, a car will generate 800GB per race. The question became, how can you get access to this data in real time?

(By the way, F1's situation is writ large across the cloud industry as a whole: Cisco forecasts global cloud datacenter traffic to hit 19.05 Zettabytes by 2021—which means it will have nearly doubled since last year. Its value in 2021, according to Gartner, will be $83.5 billion by 2021. A zettabyte, by the way, is 1,000,000,000,000,000MB.)

"I think we're in a really good phase in Formula 1," said Hackland, and that's partly down to the driver—Hackland isn't looking forward to something like driverless F1. However, the car has over 1000 channels of data, but there were none on the driver. That's changing, though, to make medical teams' jobs easier; and the benefit goes much further. Human biometric data, said Hackland, is another tool to help the team make better decisions before and during each race.

To get that car on the track, the factory itself has to generate and make sense data using hardware such as wind tunnels and supercomputers. "Aerodynamics is where the most data is generated," said Hackland, but a lot of it has to get dumped: "If we could have infinite storage, we would!" Manufacturing data is also very valuable, he said, for both speed and iteration.

KEY CONCEPTS

- Data analysis
- AI and Big Data
- Multi-cloud

TAKE ACTION

- Use the data you gather to expand your strategic horizons: you can do more than you could before
- Keep an eye on your competitors with all the (legal) data you can get your hands on
- Protect your data the same way you'd protect your humans

GRAEME HACKLAND

CIO at Williams F1 Team

Graeme Hackland is the Williams Group Chief Information Officer, joining one of the World's leading Formula 1 teams, in January 2014. Hackland has over 22 years' experience in Formula 1. He serves on the company's Executive Committee and leads the IT Risk Committee. Williams brought Hackland on board to drive the digital and information technology transformation programme.

Hackland was listed in the Hottopics. hl Global Top 100 CIOs in 2017, as well as Computing UK's Top 100 CIOs in 2016, 2017, and 2018; and the CIO 100 in 2017 and 2018. He is a Fellow of BCS, a member of the IEEE and IEEE Computer Society and holds a National Diploma in Electronic Engineering (LC) from Natal Technikon, South Africa. Outside of work, Hackland is a husband, father, and ultra-marathon runner.

All that data has a sell-by date, said Hackland: only valuable for a short period of time. So where is the valuable data, and for how long before it's no longer relevant? His team puts a lot of time and effort into the data, its structure, and its integrity. Using the cloud during the race was very attractive, said Hackland: for the last five years Williams has been running computation in the cloud. Engineers used to run data on their laptops for hours at a time in the evening—now those computations can get done while the car is still on the track. Obviously, he added, such processing is not a cost-saving exercise: "We justified it on what we would be able to do." That said, Hackland noted that the cost avoidance on lugging servers all over the world actually paid for their virtualization rollout.

In terms of security, Williams suffered two ransomware attacks: "That really upset me, because the thing I hate the most is losing data. Our people and our data are our two most valuable assets, and our people need our data!" This led to partnership with Acronis in order to step up their security game.

"Your competitors are in the garage next door to you," said Hackland. "It's very public: when you don't get it right, the public knows!" There's room for AI trackside, said Hackland, though some in the pit crew may bristle at the notion. Sitting on the pit wall, an engineer could be wrangling those 1000 channels of data, along with weather data and available competitor and competitor-analysis data… and your competitor is doing the same to you, within established rules. AI can help vet what you're doing against the rulebook, for example. (This can also help you report other teams' behavior to the FIA if need be.)

Strategy, extending beyond when to pit and which tires to use, is fed by data. Predictive analysis for your and your competitors' cars to work out when the other driver will pit, as well as other elements of competitor analysis, become possible. Quickly gathering and sorting the various data streams flying your way can help your team compete in a sport that's become about more than a driver and simply one machine.

After William's rough start to 2019, he had to address the elephant in the room: "Is our season gonna get better?" asked Hackland with a laugh, "We bloody well hope so!" Hackland and his team are looking into it… and that will involve data analysis. "Our fans are very patient," he said, "and we want to do better for them."

Believe The Hype: Hip Hop Internet Innovation

Hank Shocklee

"While the world is torn apart, creators build it back up with hard work and ideas, beauty and art, invention, reinvention and challenge. We don't care about your rules or your trends, your ratings or your gossip, your disinformation or your hype. While history gets rewritten, we're creating a new one."

So said sonic architect and mastermind Hank Shocklee. Working alone and as a member of the Bomb Squad, he has produced massive albums for some of the most successful artists ever, including Public Enemy, LL Cool J, Bell Biv Devoe, and EPMD, as well as remixing albums for Peter Gabriel, Tricky, and Sinéad O'Connor. Shocklee has been inducted into the Rock n Roll Hall of Fame, and embodies over 40 years of musical innovation, having pushed forward the disciplines of sampling and multi-layer studio recording. Shocklee and his contemporaries didn't have the luxury of turnkey solutions: they had to hack, alter, and invent the technology they needed to bring their visions to life.

Just as hip-hop transformed music and popular culture, so has the internet transformed the way we listen to music, and how culture propagates. Today's new hardware would have been sci-fi in the Eighties, and emerging distribution platforms bring your music in the ears of millions with a click. Where does that leave artists, labels, and the audience? Shocklee was instrumental in the hip-hop revolution—and he's been at the forefront of the digital revolution as well. At CloudFest 2019, he gave the crowd a sense of how the frequency of the future will sound.

"If you think about it now, there used to be like five major record companies," said Shocklee. "Now it's down to three, and soon it'll be down to two." But, he added, "The internet is also starting to consolidate itself!"

Back when everyone was sampling, he said, "It was basically taking records that already existed and creating new records out of them." Now the sampling terrain is just a mess, he added: you have to pay a fortune to do it legally, while essentially giving up the rights to the songs you create. "When you think about it, when we were sampling, we were creating an ecosystem for older artists," he said. "Those records weren't being used, they weren't being bought." Shocklee and his peers went digging, making their way through every crate in the record store; and in the process brought forgotten music back into the light. Now a new generation of people will do the same thing, and the ecosystem gets bigger and bigger.

Who Stole the Soul?

One of the things that happened was that when a phenomenon like sampling gets noticed, it changes form, said Shocklee: "When it's small, it's dynamic, it's shifting, it gets a chance to innovate very quickly"—but that changes when it reaches a certain size. Shocklee noted that Ariana Grande had to give up over 95% of the royalties for "7 Rings", since she sampled Rodgers and Hammerstein. Now, though, younger kids will know "Favorite Things", which is good for music overall, said Shocklee; but it sucks that it ends up costing Grande so much. Brown paper packages aren't the only things tied up with strings!

"Inspiration comes from everywhere," said Shocklee. "Especially artists, we all take music from other places, take certain riffs and turn 'em around—it all adds inspiration!" Now, though, inspiration has become legally controlled in a way never seen before. Shocklee said that making the seminal Public Enemy record *Fear of a Black Planet* would have been impossible today, since it had so many samples in it. It would be a non-starter, and we as a culture would have been the poorer for it (as Public Enemy would be after getting that royalty bill!)

KEY CONCEPTS

- Consolidation
- Disruption
- DIY

TAKE ACTION

- Ask yourself: are you empowering your users?
- Work towards creating platforms that encourage creativity and communication
- Watch what today's emerging artists are doing to reach and interact with their audiences to get a sense of how you can help impact culture in a positive way

HANK SHOCKLEE

Producer of Public Enemy

Hank Shocklee is a rap and hip-hop pioneer. He is a co-founder of rap group Public Enemy, legendary producer of countless hip-hop classics along with his production team The Bomb Squad, former high-powered record label executive, and recent inductee into the Rock and Roll Hall of Fame. For over the last decade, he has been working to help music find its proper place in the digital world. Shocklee has been in on the innovation as record labels, copyright holders, and musicians have worked to adapt to new models of distribution and payment.

Show 'Em Whatcha Got

Music is bigger than ever, said Shocklee; being used for so many commercial purposes. Now an artist can make money from music beyond selling records: touring, streaming, advertising, and so on. Even if we're heading for a future with only two mega-labels, there are still many channels for artists to pursue.

"The internet is the biggest way for artists to be discovered today," said Shocklee. YouTube is no longer just a video medium, but a medium for artists to be discovered: "Young people aren't getting their music from the terrestrial radio like we once did!" He also mentioned Vimeo and Bandcamp, as well as Apple Music, Spotify, and Pandora: "You have more ways than ever to hear really, really good music."

(YouTube is not just "Hey, everybody, what's up, hit Like, subscribe to my channel"—it's actually the largest music streaming service in the world, with over 1.5 billion monthly users. By comparison, SoundCloud has around 175 million users, with Spotify hot on its heels at 170 million.)

Revolutionary Generation

Shorter tracks, with more of them per album, is the norm today, noted Shocklee, because artists are getting paid per stream: "Frequency is what you want you want for streaming." The art is being driven by the new medium. "Whatever obstacles are in the way, music will always find a way to get around, just like water would." The terrestrial-radio setup pays producers and songwriters the lion's share, while streaming pays the artist—at least after the platform takes its cut. "Now everything has to be a chorus or a jingle or a hook," said Shocklee, since the tracks are so short. ("Gucci Gang" by Lil Pump, anyone?) "We could sit there all night and listen to a record," said Shocklee, "but today it's all about 'fast'!"

Shocklee and his crew used to send white-label records to DJs, records which weren't meant for public distribution. Soundcloud has replaced that today. The process has completely changed, but the forces of consolidation are something of a constant; even if they change shape each generation.

"The innovation's always gonna come from the smaller set, which is the people who are just starting out," said Shocklee. "Independence to me is the future." Musical artists made MySpace, Facebook, and Snapchat into powerhouses, and then contraction of features and support within those platforms kept artists from reaching their fans. Now imagine if every artist could create their own social media platform, said Shocklee, and you're starting to glimpse a future where the cloud industry could empower artists to control their careers end-to-end, without relying on another platform's monetization plans (or whims). "They could control all that themselves," said Shocklee, "without having to worry about the gatekeepers!" These mini-clouds, artist-driven, can end up growing without getting too hidebound and restrictive. This isn't to say we don't need big infrastructure, said Shocklee: "We still need structures to take ten and multiply it by ten—but we just need to get to ten first."

Shocklee said that the music industry is growing in leaps and bounds, with artists going from their bedrooms to the big stage. (Look at Lil Yachty, look at Lorde.) Shocklee would like to see a return to sampling, but said that we don't need that today: making new music has never been easier. We can take a two-track stereo mix and break it out into its component parts just with software. "It's not at the stage it should be, but it's getting better," he said. That's why he's looking at blockchain technology for the music world: for example, a Soundcloud track would have all of its component parts connected to their respective provenances. This is a level of decentralization that the world has never seen before.

Shocklee is working with a new cohort of young artists, coaching them to become entrepreneurs with their art as the product. His advice is to keep communication lines open between artists and those in the creative ecosystem, especially between artists with different access to opportunity.

"Centralization, he said, "is the death of us."

Fighting Abuse at Scale: Abuse Monitor Threat Report

RegistryOffice Abuse Monitor

It ain't all sunshine and roses out there... As the cloud grows more powerful and pervasive, so too do the threats against it increase. It can feel a bit like we're in the middle of World War Zeroes-and-Ones: a battle royale of phishing, hacking, DDoS attacks, and even cyber-warfare between nation-states. Make no mistake, this is the new normal—and it's a challenge shared by the entire cloud industry. However, registrars and registries often find themselves on the front line of that battle.

Ben Reuss of RegistryOffice gathered a group security-minded professionals together at CloudFest 2019 to share some of the trends of abuse that emerged as RegistryOffice deployed its Abuse Monitor tool. Abuse Monitor is a case management platform for registries and registrars, to help gauge the health of each site under its umbrella of domains under management. It will continuously scan your DUMs, notify you when malicious activity is detected, and help you take action. It can be used for early detection, brand protection, customer retention, and labor-saving in managing abuse cases as they occur. Abuse Monitor is ICANN-compliant for registries in safeguarding their namespaces.

Collectively, we must realize we cannot blame one social network or one nation for abuse, said Reuss. Quoting internet godfather Tim Berners-Lee, Reuss noted that there are three main types of abuse found online. The first involves deliberate malicious intent, such as DDoS attacks, state-sponsored hacking, criminal behavior, and online harassment.
The second type involves system design that creates upside-down incentives where user value is sacrificed, such as ad-based revenue models that commercially reward clickbait and the viral spread of misinformation. (Reddit users often describe this as "asshole design.")
Finally, there are the unintended negative consequences of well-meaning design, such as the current tone and overall low quality of online discourse in the age of constant online outrage.
Abuse Monitor focuses mainly on the first type. Domain abuse includes hacking and malware, phishing, ransomware, online abuse, and other premeditated attacks against an individual, organization, or digital entity. Hackers will always seek to exploit vulnerabilities in hosting customers, said Reuss, and this poses inherent challenges to those with a mass-market customer base. The larger your scale, the larger your exposure—and this isn't the good kind of exposure.

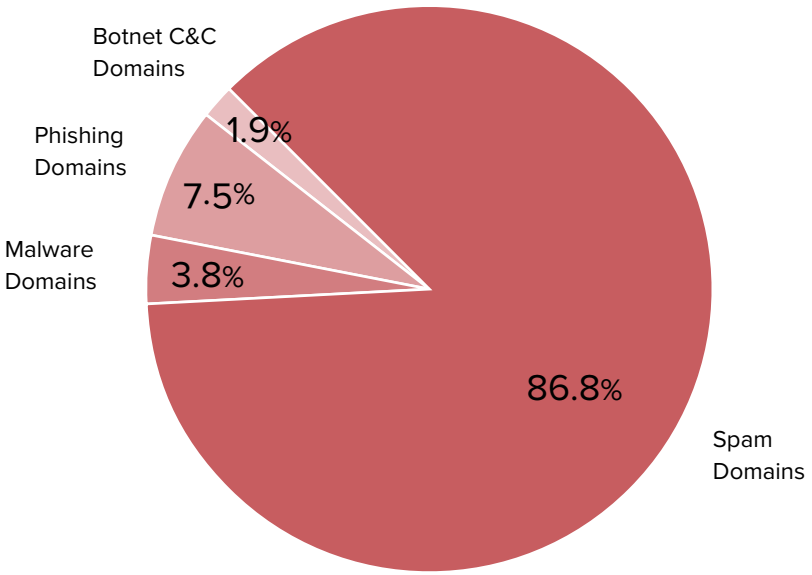
Phishing scams are a growing threat. Nearly 1.5 million phishing sites are created each month, with attempts having grown 65% in the last year. This costs $20 billion a year globally.

KEY CONCEPTS

- Cybercrime
- Back-end management
- Threat awareness

TAKE ACTION

- Master your domain: make sure all of your security is up to date
- Have a plan for when an attack gets through
- Partner with a security provider who can help you respond to sophisticated attacks



Breakdown of domains identified as security threats across all DAAR threat types

ABOUT ABUSE MONITOR

RegistryOffice Abuse Monitor provides abuse monitoring and reporting for registries and registrars alike. This service will continuously scan your domains under management and notify you when malicious activity is detected. It also includes a Case Management System, with which you can efficiently and effectively manage your abuse cases. RegistryOffice Abuse Monitor has a standard suite of reports that enable you to gain further insight into abuse within the environment under your management. For registries, RegistryOffice Abuse Monitor provides detailed statistical reports on the number of security threats identified and the actions taken for the periods specified in accordance with Spec 11b of the Registry Agreement. Find out more at https://abusemonitor.global

The attacks can be surprisingly sophisticated, even targeting children. Indeed, there are many sites crafter to mimic Fortnite, luring players into giving up personal information under the guise of interacting with a real game. You see the same with Pokemon Go and other popular games.

If you're not using an abuse manager such as Abuse Monitor, investigating and squashing a phishing scam on your infrastructure can be very time- and resource-consuming; and every day it remains active is another day your customers can come to harm.

Ransomware is also on the rise, with damage costs predicted to hit $11.5 billion this year. The WannaCry ransomware may be the most famous recent case, affecting over 300,000 computers, each time demanding a ransom in Bitcoin. This scaled attack impacted aerospace players such as Boeing and LATAM; heavy manufacturers such as Honda and Hitachi, telecoms such as O2; as well as police forces, government ministries, universities, and—especially frightening—the National Health Service in the UK.

Ransomware on healthcare organizations are expected to quadruple by 2020. Getting intimate data such as health information should keep CTOs up at night; other sensitive targets for ransomware include energy providers and police forces. Besides the loss of data and trust, there could be legal ramifications that hit you as the registry if an attack like this happens on your network.

The bad guys are always dreaming up new ways to attack, so registrars have to be ready for the day when they have to go into Fight-Back Mode. Make sure you can act quickly and decisively.

Building Next Generation Cloud Infrastructure and Services

Jeff Wittich

When it comes to building next-generation Cloud infrastructure and services, Jeff Wittich, Senior Director of Cloud Service Providers for Intel, brings unique expertise in hyper-scaling to the table. He talked to the CloudFest 2019 crowd about what's coming next in terms of infrastructure, and how that will inform the evolution of what can be delivered through the Cloud.

If we look back a few decades, we were running one monolithic application on one single server, said Wittich: "Things luckily evolved past that!" Once virtualization was introduced, we were able to run multiple applications per server, each with its own OS. Then came on-demand virtual machines, which allowed for multi-tenancy, self-service, and automation; and these things became table stakes.

Now cloud services are everywhere... and they're totally blowing up. Wittich said that the growth of the underlying services relying on this infrastructure is the driver of this overall explosive growth: "It's not just from the efficiency gains of the technology alone."

Digital retail will soon become $4.9 trillion market, and digital advertising also has tremendous room for growth as our lives move more completely online. 360-degree video? Also growing. Cloud providers have to think about how their infrastructure will be consumed, said Wittich. "All of these explosive cloud services, these are the catalysts for business transformation," said Wittich, "but there are some roadblocks here."

Legacy infrastructure is a main offender here: it's important that business initiatives align with what's happening with technology, said Wittich. It's not just about technology: it's about agility as well. "Over the next couple of years, over 80% of businesses will use the public cloud," said Wittich, with around 40% of their operations running there.

The top three reasons for moving operations to the Cloud, according to a 2016 KPMG survey of 4,498 CIOs and IT leaders across 86 countries, were:

1. To improve availability and resiliency
2. To improve agility and responsiveness
3. To accelerate product innovation

KEY CONCEPTS

- Hyperscale
- Infrastructure
- Customer service

TAKE ACTION

- Consider how your hardware elements will interact when planning for scale
- Find the weak links in your hardware infrastructure: do they need a refresh?
- Examine your data-handling practice to see if anything useful is getting ignored

JEFF WITTICH

Producer at Public Enemy

Jeff Wittich is Intel's Senior Director of Cloud Service Providers (CSPs) in the Data Center Group and is responsible for setting global strategic initiatives in order to accelerate cloud growth and deliver innovative platforms to CSPs. Over the last 15 years, Jeff has held a wide range of roles at Intel across engineering, management, and leadership including product development for five generations of Intel Xeon processors. He holds a Bachelor of Science degree in Electrical Engineering from the University of Notre Dame and a Master in Science degree in Electrical and Computer Engineering from the University of California, Santa Barbara. This unique background has given him a wealth of knowledge which he now leverages to drive Intel's platform and business strategy for the fast-growing CSP market.

Businesses want peak performance at the rack level, said Wittich, so they can turn around and deliver peak performance to their customers. So when you're looking to hyperscale, he said, you have to consider the flexibility you want to offer, and how quickly you can scale to meet their demands. Intel goes deep and wide in its scope of offering, said Wittich: "We're able to innovate across a broad spectrum." Intel leverages its size as a legacy company to deliver end-to-end hyperscale services for tomorrow.

We're moving from an era of human-generated data to one of machine-generated data, said Wittich, and we have to make sure we're using it correctly: "There's a lot of data out there that's not being used today." We need to store more, move faster, and process everything if we want to be considered truly data-centric.

Wittich demonstrated a 512GM RAM module called the Optane DC Persistent Memory chip, which is around the size of what we used to jam into desktop machines ten years ago. Wittich said his team saw a 4x better performance in terms of VM density when using that chip, as well as great promise in terms of AI and analytics. When used with Apache Spark, Intel saw an 8x performance increase. Alibaba and Dell EMC are among the beta users of this chip, said Wittich: "This product is gonna launch very, very soon!" The Optane line extends to SSDs as well, he added, which can be used as cache.

Intel's connectivity portfolio lets customers move weight away from their cores, increasing the bandwidth from edge to core as well. From one company, a customer gets a more efficient and better-performing infrastructure: when everything comes together as a full solution—you unlock the true power of hyperscale. Wasn't Wittich forgetting something, though? No: "It wouldn't be an Intel presentation if I didn't move into the processors!" The next-gen Intel Xeon processor, code-named Cascade Lake, is purpose-built for the cloud: higher frequency for higher performance, as well as better caching and better security controls. New features helps customers improve inference performance by 11x, he said, and improvements for usage with AI will keep on coming. "It goes beyond just the core product," said Wittich, and involves the entire ecosystem.

Ranier Sträter, head of IaaS/Cloud at 1&1 IONOS, joined Wittich onstage, testifying to how an Intel hyperscale setup worked with a web hosting platform, in terms of performance and security: "At the end of the day, customers want secure, very fast platforms." Just installing new technology isn't enough, said Sträter: you also need a strong partner to help you implement and scale it.

Intel continues to innovate on cost effectiveness, performance, and telemetry for network self-monitoring and load balance, said Wittich; but the wider world of the cloud must also be considered: "It's important that we develop industry-standard APIs," he said, so workloads can be moved from cloud to cloud without users getting locked into growth-hindering platforms.

Wittich invited CloudFest attendees to chat with him during the festival about scaling to the next level.

How Microsoft AI Is Empowering Business Transformation

Christian Geckeis

"Our industry does not respect tradition, it only respects innovation."
— Microsoft CEO Satya Nadella

Forget about Clippy. Microsoft is at the forefront of innovation in artificial intelligence, and its vision for AI is one of empowerment—empowering developers to innovate, empowering organizations to transform entire industries, and empowering everyday people to transform society. The goal is to empower organizations to bring responsible and trusted AI to every app, every business process, and every employee. AI redefines what is possible. In his CloudFest 2019 keynote, Christian Geckeis, Partner Development Director at Microsoft, explained what that will look like.

What does AI look like in the real world? Is it your voice assistant? A self-driving car? A humanoid robot? The end of the world as we know it? "What could be worse than the apocalypse?" asked Geckeis. "AI could just be a marketing buzzword!"

Business around AI has exploded, said Geckeis: 67% of business have already indicated a willingness to engage with artificial intelligence in their plans for tomorrow. Some major trends have come together to make this the moment for AI, said Geckeis. The answer to the why-now question is that our technological environment was previously unable to incubate AI that's useful on a daily use-case basis—much like how the planet's environment had to evolve before life could follow suit.

We're in the era of ubiquitous computing, said Geckeis, means that data is coming from everything and everywhere, and also getting processed faster than ever before.

This is also the era of Big Data: in the next two years, more data will be generated on Earth than in the last 5000 years. "This data won't be perfect," cautioned Geckeis, "but it'll be there." Like hydrogen and oxygen combine to form water, AI becomes feasible when enough data meets enough computing power.

Imagine what your customers can do with live video analysis, said Geckeis: the ramifications from security to retail are massive. AI needs an intelligent cloud, he said, which communicates with an intelligent edge. Physical datacenters have to grow, since data must be processed somewhere: that's how you go hyperscale. Microsoft's new datacenters are carbon-neutral, added Geckeis, to accommodate for the trees that get cut down to build those massive data farms. Microsoft has more cloud links than any other provider, he said, and the connections are getting better and better with terrestrial and undersea cables... which are reaching underwater datacenters—this is Project Natick. "This is just for fun... no, it's not! It makes a lot of sense!" said Geckeis: These aquatic datacenters are easier to cool and secure. Microsoft also boasts the most comprehensive compliance coverage in the industry, he said, "because everyone is attacking you on everything!"

Microsoft's Azure AI service is built on cloud-native Azure infrastructure, linked by a purpose-built toolset, to be available in flavors ranging from a low-code basis to advanced development. Geckeis said Microsoft understands that customers will usually have some sort of on-site data processing, so the Redmond-based outfit is always thinking in terms of hybrid cloud.

How do customers get to an intelligent-cloud setup? Bit by bit (or maybe it's byte by byte). "A lot of customers migrate smaller or unprofitable workloads first," said Geckeis: "Shifting to the cloud is not the end. It's the starting point of your innovation."

Artificial intelligence doesn't just thrive on a cloud—it demands a cloud, said Geckeis: "AI will not happen if your data stays where it is today." The drivers for that cloud migration include cost, technology refreshment, and the need for speed. Microsoft's customers are already getting tastes of AI whether they realize it or not: did you know your Excel spreadsheet has AI functionality? Suddenly it seems a lot less boring.

AI needs to be transparent and inclusive, said Geckeis: algorithms are written by people, and those algorithms should not be discriminatory. Facial-recognition shouldn't just be tuned towards white faces. Data shouldn't be sold behind the customer's back.

Ultimately, Geckeis said, AI can amplify human ingenuity. AI can bestow superpowers upon individuals and teams to outperform even their own expectations in science, industry, and art.

This is no longer a secret, as companies flock towards alignment with hyperscale service providers who can make the AI dream come true. 7500 partners join Microsoft every month, said Geckeis; and the company does 95% of its business with partners: "Choose a partner who's as dependent on you as you are on them."

KEY CONCEPTS

- AI
- Big Data
- Hyperscale
- Responsible data handling

TAKE ACTION

- When making the jump to hyperscale, pick a partner who really acts like a partner
- Look for elements in your business where AI can help your humans perform at their best
- Make sure your Big Data is being fed to inclusive, "friendly" machines

CHRISTIAN GECKEIS

Partner Development Director at Microsoft

Christian Geckeis studied commercial information technology and is now responsible for the Commercial Partner Development in Microsoft Germany. Before joining Microsoft he was running the SAP Midmarket Business at SAP for Switzerland prior he held several roles in sales management at IBM Germany since 2002. Today Christian and his team are experts in developing Microsoft cloud solutions across System Integrators, Independent Software Vendors, Managed Services Provider and Reseller.

Fear No Cloud

Xavier Poisson Gouyou Beauchamps

The Cloud is not a destination, it is an experience. Every customer deserves to find and have the best solutions possible. No matter where you are on your IT journey, there is a way to innovate faster with any cloud, anywhere, and at the right cost. Risks associated with the Cloud can be flipped into a trusted, sustainable, and positive experience. You can live your Cloud, your way.

In his keynote address, Xavier Poisson Gouyou Beauchamps, Hewlett Packard's Vice President for Service Providers and Cloud28+ Worldwide, shared with the CloudFest 2019 crowd how technologies and alliances to shape the next generation of IT and break cloud stereotypes.

People are moving to the cloud to simplify IT and move faster, said Poisson, "But what do I do with this word 'Cloud'?" There's no such thing as just one cloud, he said—we need to think beyond the implied limitations of that word. HP, he said, builds solely for the customer: "We have no cloud! You are our cloud!" The Cloud is an experience; it's Everything as a Service (EaaS): "It means that you are paying for what you use, and you're avoiding being locked in." Community-building and knowledge sharing. It's AI as well, said Poisson which is going to be everywhere.

Poisson gave a quick rundown of Cloud28+, a collaboration between HP Enterprise and Intel that serves as a global cloud computing knowledge base, services marketplace, sales engine, and federation of CSPs, with over 900 partners in 71 countries. It boasts over 35,500 distributed cloud services globally, across over 600 datacenters; serving over 5,300 users in nine different languages. It's a growing commercial force, but the community power behind it cannot be overestimated.

To make a truly attractive EaaS product, HPE developed a consumption-based IT offering. Think of it as a la carte rather than a buffet, when all the customer wants is a croissant. His team's data, said Poisson, proved that demand for that model was very real. HPE's GreenLake service boasts Flex Capacity (not to be confused with "flux capacitor", on the DeLorean parked on the keynote stage), a scalable IT infrastructure service that provides a consumption-based IT model aligned to capacity usage; so IT organizations can easily scale up to handle fluctuations in demand and market conditions.

He then mentioned Hybrid Cloud, which lets customers use the precise cloud resources they need, wherever those resources are needed, at high speed. It delivers the Microsoft Azure Stack through the aforementioned flexible consumption model. He also briefly talked about HPE's Cloud Bank Storage, which allows a CSP to act as a disaster recovery service as well as a long-term storage repository.

KEY CONCEPTS

- Partnership
- Hybrid cloud
- CSPs

TAKE ACTION

- Differentiate yourself by surfacing unique offering
- Explore Cloud28+ and tap into the global knowledge base
- Re-evaluate your pricing model to see if there are opportunities for more granularity

XAVIER POISSON GOUYOU BEAUCHAMPS

VP, Cloud28+ and Service Providers Worldwide at Hewlett-Packard Enterprise

In his role as Vice President for Service Providers and Cloud28+ Worldwide, Xavier Poisson leads global expansion of an ecosystem and digital platform that creates new opportunities for partners and customers alike to accelerate their business results. He initiated and continues to drive the growth of a unique digital business platform known as Cloud28+. An open community, Cloud28+ unites Service Providers, ISVs, VARs, distributors, public sector organizations, and technology vendors to offer a cloud services catalog for customers who require specific business and workload solutions. In addition, Poisson leads the overall sales development and enablement of HPE's global ecosystem of service providers that deliver the off-premises IT element of HPE's hybrid cloud strategy.

“The experience of the hybrid cloud is for you as the service provider,” said Poisson, “Because what you are proposing to your customer, you can back it up with us in the right way.” It’s about being able to cope with public, private, and hybrid clouds on behalf of your customer.. (The size of the hybrid cloud market is projected to blow past the $90-billion mark in 2021, according to Markets and Markets.) HPE’s new consumption model is also about how the CSP can differentiate its offerings, said Poisson.

Poisson also discussed HPE Cloud Volumes, which drops the cost of storage when using VMs on the public cloud, such as with AWS or Azure. Everybody goes to the public cloud and VMs, said Poisson, but nobody cares at first about what data lives there… “but the biggest issue is the cost of exit!” This sets your data free, he says, making it nimbly mobile across your clouds and their edges. Meanwhile, HPE InfoSight improves cloud efficiency by up to 85% through AI, automating support by automatically opening and solving up to 86% of issues as they emerge.

Poisson said that HPE wants to accelerate together with CSPs, even if that means working with other hyperscale services. Overall, it emerged, you don’t move to a hybrid cloud to save money—you do it to deliver better services faster. This mindset is not limited to the CloudFest Main Dome, either: Forrester’s 2019 Cloud Predictions noted that “Private cloud is no longer about quick provisioning of servers — private cloud in 2019 is about creating a flexible, agile, automated, and software-defined software development platform. Success will be measured by developer satisfaction and time-to-market for new products and services, and not by taking out cost,” adding that enterprises are going to get real about on-premises and hybrid-cloud leverage.

Like it says in Spider-Man, with great power comes great responsibility: as a CSP, you can influence your customers’ own roadmaps with the tools you make available to them. So how will you live your Cloud?

The Cognitive Enterprise: A New Model For Your Competitive Advantage

Marie Douglas

The Cognitive Enterprise is the next logical step in the digital transformation, said Marie Douglas, Vice President, Global Technology Service Providers (CSPs, MSPs) at IBM, in her CloudFest 2019 keynote. Customers are aware that now is the time to develop new applications and start moving traditional mission-critical enterprise applications into an open hybrid-cloud environment, and foster innovation by overlaying applications with artificial intelligence to serve enterprise best-of-class needs to deliver impact at scale. She walks the walk, too, having automated her home as much as possible—even with competitors' products: "I'm so AI, it's ridiculous!"

"Every client that I have worked with is looking for new ways to use the cloud to transform business processes and reinvent customer experience," said Douglas. Clients are excited to unlock the potential of AI. Beyond technology, IBM brings expertise and reputation to the table, said Douglas, adding with a laugh, "Of course, we're, what, like 150 years old now?"

Over the past few years, she said, the Cloud has become integral to growth and innovation strategies. It has allowed enterprises to tap into more sources of data, both their own and their customers'. "Modernization of existing applications is the next big wave," said Douglas. Twice.
Because it's that important. Migration, modernization, innovation, and management of applications all rely on migrating to the cloud. "Here's the thing: you need to overlay with artificial intelligence," said Douglas. "That's what we call Chapter Two. It's the next logical step in digital transformation."

This needs to be done according to a plan, though: don't just dump data and apps into the cloud like you're loading a washing machine. "You can end up in unforeseen silos," warned Douglas, "making it tough to manage security, compliance, resiliency, and governance."

"Multi-cloud management gives you seamless visibility," said Douglas, with world-class security. "We are here to help you get your journey right," she said. Businesses struggle to manage the data sources they already have, never mind trying to wrangle new streams. This leads to slower time to insight: "When you're identifying opportunities for innovation, you can end up with a lot of data challenges."

IBM is sailing into the future—building a Mayflower for the 21st Century, to coincide with the 400th anniversary of the British ship landing at Plymouth Rock. This ship will be autonomous, looking beyond that particular date. The challenges could be stacked into:

Regulatory Friction—"Why change the Mayflower?!" Also, who will flag and class the ship?

KEY CONCEPTS

- AI
- Hybrid cloud
- Partnership

TAKE ACTION

- Plan a data management strategy for scale
- Explore hyperscale AI tools and their interoperability with your cloud structure
- Choose your partner wisely: make sure they understand your journey and can give you useful advice

MARIE DOUGLAS

Vice President, Global Technology Service Providers (CSPs, MSPs) at IBM

Marie Douglas is Vice President, Global Technology Service Providers (CSPs, MSPs, ISVs) Sales for IBM. She is responsible for and leads her team to work with Technology Service Providers, a NextGen segment that builds solutions for Customers based on solving a business problem with technology which include one or more IBM offerings. At IBM, she has been in a myriad of positions such as Channels Development, WW Sales Leader, and Business Partners Sales, all of these positions have made her a strong advocate for IBM's ecosystem. Douglas is a graduate of Franklin Pierce College with a dual major in Marketing and Business. She has received recognition at IBM with awards such as Golden Circle in 2007 as well as two Tivoli General Manager's Team Awards.

Resistance—Bureaucracy, perceived risk to traditional employment, establishing risk ownership as well as the reason for taking the risk in the first place.
Technical Hurdles—It turns out that trying to get a ship to sail itself across an ocean is... complicated.

IBM had to bring in Watson, its AI supercomputer, to help design and control the navigational system. The result is state-of-the-art vessel that sails itself while avoiding collisions. It's solar powered, and sports cutting-edge weather prediction and avoidance tools. What can she say, Douglas loves to disrupt those models "whose time has come".

Douglas said that lots of companies are working on that Next Big Thing as part of this second chapter of the Cloud, and she loves being involved. She pointed to Tegsoft, a Turkish software-based contact-center startup which built its business on IBM Cloud. Douglas not only wanted to help, but to counsel them on differentiation and protection from copycats. And, of course, "How are you gonna scale?" After a 45-minute conversation, Douglas suggested a three-day technical workshop to work on Tegsoft's roadmap—which she invented on the spot, as IBM didn't offer such a thing at the time! The result: "They actually created their journey to Cloud!"

IBM boasts the ability to empower clients to access, categorize, and share data with apps wherever they are, and to do so with transparent and trustworthy tools—a must when dealing with AI. "We're not the same company your parents may have known," said Douglas. Her team's job is to help today's companies become tomorrow's companies by layering AI into their cloud operations, which will simply have to be done to compete in this new age of interconnectivity and Big Data: "Even if you don't believe me," said Douglas, "It's gonna happen!"

Building an Open Source Community For Enterprise Blockchain Technology

Brian Behlendorf

The blockchain world is dynamic, innovative, alive... but also often very tribal and competitive.

Brian Behlendorf is most famous for developing the Apache HTTP server and former CTO of the World Economic Forum, but did you know he was also one of the original technologists for the Burning Man festival? Empowering everyday people has always been a priority for him—he's a longtime subverter of corporate software culture, and he does it for our own good.

At Hyperledger, Behlendorf and his team use their home at the non-profit Linux Foundation consortium as a lens through which to see the future of this space: shared, collaboratively-built platforms that help handle the basic plumbing behind distributed ledgers and smart contracts, in an innovation-friendly way that avoids creating walled gardens. In his CloudFest 2019 keynote, Behlendorf told the audience not only what can be done with blockchain technology, but also how one can become a stakeholder in its future evolution.

"It's not me, it's not one inventor," said Behlendorf of his role in birthing the Apache webserver, "it was an entire community who pulled it together!"

He noted that decentralized platforms are "getting re-centralized under our feet." That degree of centralization has driven the Linux Foundation to work on Hyperledger. He noted that people are rightfully skeptical whenever they hear the word "blockchain", due to the insane amount of hype around it. The term no longer applies to the data structure itself, but encompasses distributed-ledger technology and smart contracts. Essentially it creates an immutable, shared system of record that can then create an automated multi-party business workflow. So, yeah, not just some coin with a cute logo that will disappear tomorrow. "There's always a power dynamic between the server and the client," noted Behlendorf, saying that distributed ledgers can rebalance the relationship.

Financial services is one application, said Behlendorf, hence the hype so far. There are also supply-chain applications for the blockchain, which is emerging in the

KEY CONCEPTS

- Blockchain
- Open source
- Disruption

TAKE ACTION

- Research the different types of blockchain
- See if Blockchain as a Service is something your company can offer
- Champion open source development in your own organization and community

BRIAN BEHLENDORF

Inventor of the Apache Webserver

Brian Behlendorf was a primary developer of the Apache Web server, the most popular web server software on the Internet, and a founding member of the Apache Software Foundation. He has also served on the board of the Mozilla Foundation since 2003 and the Electronic Frontier Foundation since 2013. He was the founding CTO of CollabNet and CTO of the World Economic Forum. Most recently, Behlendorf was a managing director at Mithril Capital Management LLC, a global technology investment firm.

globe-spanning airline industry. There's also healthcare, where sensitive data must be moved around while maintaining its integrity. Our systems are broken, he said, because data owners haven't been interested in sharing data.

"There's a lot of healthy skepticism, a lot of overblown hype," said Behlendorf, so his team spends a lot of time on educating people on why blockchain is important. He's not alone—in a white paper, Cisco forecasted 10% of the world's GDP likely to be on the blockchain by 2027, with its market size reaching nearly $10 billion in two years' time.

On the spectrum of permissions and privacy we have permissionless public blockchains such as Ethereum and Bitcoin on one side; and smaller, permissioned, private blockchains on the other. There's an angle on digital identity to blockchain, added Behlendorf: such as a self-sovereign identity approach being explored by British Columbia at the moment.

Hyperledger is a global collaboration across various fields that wanted to explore the potential suggested by the emergence of blockchain. The Linux Foundation (the largest shared tech endeavor ever) works through open source to solve the world's toughest problems, so it was the ideal team-up. "It's kind of a nerd's paradise," said Behlendorf with a grin. Beyond something like Github, Hyperledger wants to cultivate a portfolio of technologies that relate to each other in a meaningful way; raising participants' skill levels as it develops. The goal is to create software that can be run in production environments.

There are six frameworks to the Hyperledger technology, starting with Hyperledger Fabric; with applications ranging as far as air traffic control— the National Bank of Cambodia is experimenting with a Hyperledger version at the moment. Interestingly enough, IBM was the first to delply Hyperledger Fabric to the cloud, and now it's on all the hyperscale services, from AWS and SAP to Huawei and Azure.

After 25 years of the open-source revolution, Behlendorf hopes that the collaborative ethos will catch on more. The key to success with a multi-stakeholder project, he said, is to have a process that's healthy and transparent. Behlendorf said that Hyperledger is running developer bootcamps around the world in order to nurture a workforce capable of engaging with the tools at an expert level: "We need more than just one heroic person writing code and shipping it out!" Even if no new software emerges from these bootcamps, Behlendorf considers student development to be a win in and of itself.

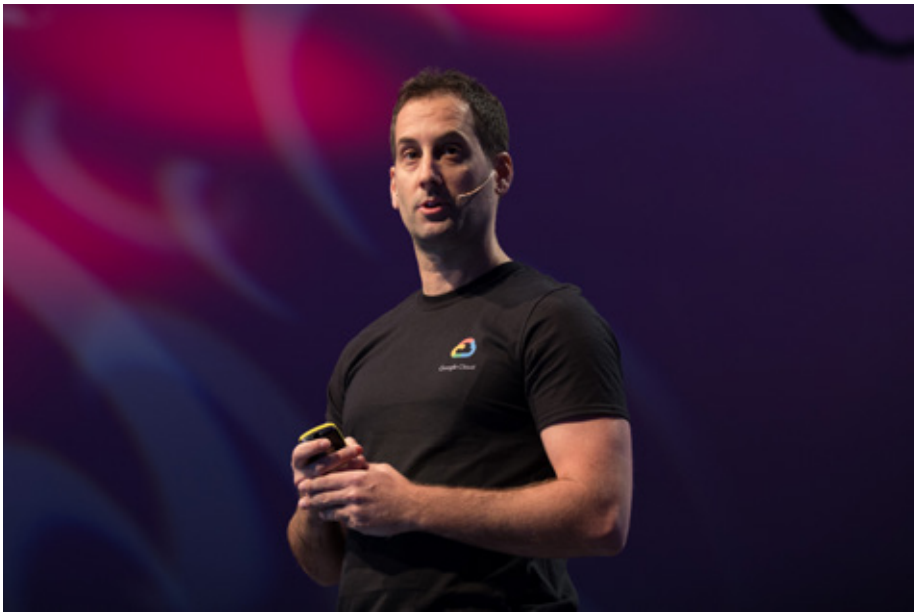
"There's a lot more work to do in the open-source world," said Behlendorf, to reach a true multi-vendor, multi-stakeholder future. "This is not a war that has an end, this is not a battle that has a conclusion," he said, "this is an ongoing process for us."

Power Your Moonshots with the Cloud

Yuval Dvir

"May you live in interesting times": it's a famous back-handed blessing. And yet... here we are, living in interesting times. Technology is changing the way we live, work and play. Time to insight and frequency of innovation are being fueled by the ease of data sharing, collaboration and productivity.

The convergence of infotech and biotech is increasingly driving more disruptions in new industries and businesses. Underlying this phenomenon is the high availability and non-compromising security of the cloud. In his CloudFest 2019 keynote, Yuval Dvir, Head of Online Partnerships at Google Cloud, looked into the building blocks of the future organization, enabling everyone to build, innovate and scale via the cloud.



These days, every organization in every vertical must know how to innovate in order to stay in the game. "The world is unpredictable," said Dvir, "and technology is the trigger for a lot of change." The emergence of the Cloud has transformed society.

Innovation can meet its nemesis in the form of corporation, which tends to favor the status quo. Digital transformation can serve as a bridge between these two ideals, said Dvir. Google Cloud seeks to give organizations the tools to make this happen, and to make innovation a bit less scary for those organizations that may be change-averse. Google has contributed to a lot of open-source software as well—for example, Kubernetes was born at Google.

Now the Google Cloud Platform reaches over a billion people—not bad for a company that started as a Stanford University research project in 1995. Dvir said that Google has nurtured innovation, both in-house and through acquisition, since that first year: "When we think about scale and enabling that, we have a lot of experience!"

There's more data out there than ever these days, said Dvir, and more people are using mobile. The proliferation of smart devices will only push this data explosion to grow bigger. But, he said, when you can't figure out how to integrate, manage, and use your Big Data, you miss out on what it can do for you. The Cloud is all about offloading the heavy lifting of data processing from your team, so you can focus on business performance. So,

KEY CONCEPTS

- AI
- Big Data
- Hyperscale

TAKE ACTION

- Develop an in-house innovation strategy to win over any holdouts
- Decide what data tasks you can offload to a partner
- Explore open source, as a user or contributor

YUVAL DVIR

Head of Online Partnerships at Google Cloud

Yuval Dvir is a Business Transformation leader with hands-on experience on leveraging technology, people, and business models to lead real change, innovation and growth in global organizations. Currently, he heads Online Partnership for Google Cloud - the smart productivity applications and the cloud based building blocks that power many of today's organizations. Prior to that, Dvir led the Strategy for Google Ad's Global Product Operation, improving customer experience for Google's Advertising partners and clients. Prior to joining Google, Dvir led Skype's Product Strategy and as the scope expanded, created the Business Transformation group, responsible for driving the wider strategic alignment of the division and the data culture across wider Microsoft post acquisition. As part of this turnaround, he oversaw the rebuilding of Skype's data architecture, from pipeline feeds to the last mile of visualization, adoption and business growth, and with the very first ML implementation in collaboration with MSFT research China. He holds a B.S.c from the Technion—Israel's Institute of Technology—and an M.B.A from INSEAD Business School in France and Singapore. Dvir is currently working towards his MSc in Neuroscience at King's College London.

besides driving this data boom, the Cloud is also necessary to manage the resulting flood of information. Hyperscaling, then, is both an action and a reaction.

The best way to understand machine learning is to understand human intelligence, said Dvir. Telling a machine to recognize a dog's face, for example, gets complicated when you start switching breeds and ages, or have images of dogs facing in different directions. Or dogs that look like rats. (Not that we're judging anybody's dog—just pointing out how difficult machine vision is.) Human intelligence has disadvantages, too, though, noted Dvir: humans can have a bad day. They can get angry or sad, which affects their cognition. You'd probably not want your surgeon to be furious when she's about to make the first incision.

Machines can be amazing autodidacts, gaining experience as they operate and directly applying what they learn to get better at the tasks they're designed to do. Google's Deep Mind ended up beating a Grand Master in the game of Go, considered more complicated than chess; so Deep Mind was essentially stunting on IBM's Deep Blue, which only managed to beat a chess grandmaster back in the day. Dvir spoke to "machine creativity" in describing a feat that has applications toward driverless cars, which have to deal with a dizzying number of variables.

While AI is still a work in progress, machines are proving to be adept partners in their own development—teaching us something about our own minds along the way.

Connecting to Digital China

Dr. Ye Huang

Dr. Ye Huang, Head of Solution Architects for Alibaba Cloud, DACH and CEE Region, at Alibaba, addressed CloudFest 2019 on how the Alibaba Group supersized through marketing, partnerships, and savvy multi-cloud deployment; becoming the largest cloud provider in China.

Huang started with the marketing aspect and gave the crowd a quick rundown of Alibaba 11.11, which is the largest "sales festival" for Alibaba Group—and the largest sales event in the world. It was devised to drive shoppers to Alibaba's Tmall online shopping platform. The plan: to rebrand Singles' Day, observed on November 11, into something like the American shopping stampede Black Friday. It was so successful, it pushed Alibaba's infrastructure into the red! 11.11 also pushed physical logistics to their limits as all those packages had to be delivered across a massive country.

11.11 became a must-do event for marketers, much like how no major brand ignores the Super Bowl. It was no longer about China's singles; not by a long shot! Alibaba has effectively blurred the line between entertainment and shopping, developing new customer-engagement tools along the way to change the digital retail experience. Now the entire Alibaba ecosystem gets behind 11.11... and it has to, in order to prevent a service-delivery meltdown. Software, infrastructure, UX and CX insights: they all converge to meet the customers where they are—on mobile. By definition, that means a comprehensive hyperscale cloud strategy.

Last year's event, said Huang, made $32 billion in 24 hours. That's just over $22.2 million per minute. One is reminded of the phrase "A licence to print money." However, this is money that flowed across the Tmall platform, he clarified, not money that went entirely into Alibaba's coffers.

The technology backbone of Alibaba Group, said Huang, is geared towards enabling business to be done anywhere. "This is the original power of the group," he said: to enable both B2B and B2C commerce.

Alibaba is also a hyperscale Cloud provider, one of the six largest in the world, and number one in China. The goal, said Huang, is to build the global industrial Cloud platform. At the moment, though, he said, "Because China is our home market, we have better infrastructure available there." Alibaba is compliance-forward, he said, which became a habit after working in China and Singapore. In terms of products, Huang didn't have enough time on stage to go through all of them, but suffice to say that Alibaba should be considered EaaS (Everything as a Service), with customers in the hundreds of millions on its main e-commerce sites: Taobao, the aforementioned Tmall, and Alibaba.com. The CloudFest audience would also already be familiar with AliPay, which is growing quickly through acquisitions and internal development.

Engaging an emerging trend at this year's CloudFest, Huang noted Alibaba's use of a Cloud-based machine-learning platform. The e-commerce giant also offers security as a service with anti-DDoS technology, for example helping AirAsia protect its booking system from malicious action. The group serves as a vector for overall digitization and green-energy transformation of China, said Huang, and international digital giants like Airbnb partner with Alibaba to deliver their brand experiences in China: "We offer the muscle, so they can run as fast as they want."

Meanwhile, said Huang, Alibaba is gaining customers in the DACH region through better partnerships—it teams up with big dogs such as Vodaphone, SAP, and Siemens.

Huang showed, in an understated way, how hyperscaling can generate its own momentum for success, though a lot of planning is required to manage some of those big wins.

KEY CONCEPTS

- Hyperscale
- Customer experience
- Partnerships
- Multi-cloud

TAKE ACTION

- Think outside the box in your marketing: can the tail wag the dog?
- Explore region-specific partnerships to solve localized growth problems
- Look at how scale can change the nature of your business

DR. YE HUANG

Head of Solution Architects, Alibaba Cloud DACH & CEE region at Alibaba

Dr. Ye Huang received his PhD in Grid Computing from University of Fribourg, Switzerland. After very active publication and academic community services during his research work in Fribourg, Dr. Huang switched to industry in 2011 and worked in a variety of enterprises in Germany as full-stack DevOps engineer and Cloud architect. Now he is the head of solution architect of Alibaba Cloud DACH and CEE region, and is responsible for Alibaba Cloud's products and solutions oriented designing and implementation in DACH and CEE region, including but not limited to topics like infrastructure, multi-Cloud, BigData, Artificial Intelligence and Alibaba ET Brain solutions.

Build Your Service Business on the OVHcloud

Hiren Parekh

If your core business is consulting and managed services, you probably don't want to spend time handling the infrastructure on which that business runs. Good thing you don't have to, huh?

At CloudFest 2019, Hiren Parekh, Senior Director of Cloud Services, EMEA at OVH, walked the crowd through how OVH Private Cloud, built on VMWare and Intel technologies, can help you develop a more efficient service practice—that way you can focus on your added value, while someone else deals with the platform. That's the power in partnering with a managed-services partner, said Parekh: it simplifies the management of client IT services by migrating and running applications and infrastructure 24/7/365.

"By 2025, data will be ten times what it has been since 2016," said Parekh. OVH is the alternative SMART cloud provider, said Parekh; and that acronym stands for Simple, Multi-tool, Accessible, Reversible, and Transparent. "Our technology is based on open ecosystems, with server de- livery in 120 seconds," he said. Like how the Virgin Group serves its own brand of drinks aboard its planes, OVH manufactures its own servers and operates its own high-capacity fiber network—even designing its own eco-friendly server-cooling systems to eliminate the need for air conditioning at all of its datacenters built since 2010. (Overall, OVH runs 28 datacenters around the world.) "Owning this entire supply chain allows us to pass on the cost savings to our customer and to our end users," said Parekh.

Having the right "universe" to deliver to the right customer in the right way is key, said Parekh. Datacenter migration is one of the biggest markets identified by VMWare, said Parekh: OVH partnered with the virtualization giant to tap into that market. Over half of existing organizations will be forced to update their datacenter assets in some way, and that will surely involve some sort of integration with Cloud. Partnering with an established provider such as OVH, said Parekh, helps those companies navigate the dense forest of decision-making that they must get through, noting that the term "data migration challenges" surely sounds familiar to everyone in the room.

OVH has several solutions to a company's data-migration scenario, said Parekh: "It's not just about Cloud". To be a trusted advisor is to guide a company towards the solution unique to its needs, he said, even if that means onsite hardware. In a lift-and-shift scenario, the client would deploy directly to OVH with OpenStack and VMWare, or they could use OVH as an storage/recovery extension of their existing datacenter.

In a multi-cloud scenario, OVH becomes one of several Cloud providers that a customer integrates into her data-migration strategy, said Parekh: part of being a trusted partner means knowing when to suggest a competitor: "We are not competing, we are complimentary." As a hyperscale service provider with over 1.3 million customers and over 5,000 registered partners, OVH is also capable of providing end-to-end service.

With OVH Private Cloud, the customer gets fully dedicated hardware with the scalability and flexibility that the Cloud offers. The infrastructure is virtualized with VMware, and the hardware is fully managed by OVH. The customer then uses vSphere to spin up unlimited virtual machines on demand. "They have the flexibility and ability to scale," said Parekh. Resources are available hourly as well as monthly, for the load demand triggered by those Black Friday (or 11.11) sales and traffic spikes.

Investing in the future of the Cloud, OVH started the Open Cloud Foundation, partnering with other organizations to promote openness and fight vendor lock-in; seeing those factors as key to continued healthy business growth in this industry. OVH also runs the Digital Launch Pad, an accelerator for startups.

KEY CONCEPTS

- Hyperscale
- Multi-cloud
- Partnership
- Data migration

TAKE ACTION

- Plan your own data migration strategy as you scale
- Differentiate your CSP offerings through elements like coaching and sustainability
- Reach out to your peers: you're stronger together

HIREN PAREKH

Senior Director of Cloud Services, EMEA at OVH

HirenParekh is an industry expert with over fifteen years of experience in IT. He has previously held positions in organizations such as Serif and HostEurope, before joining OVH in 2015. As Senior Director of Cloud and Hosting for the EMEA region at OVH, Parekh is focused on helping businesses to engage in cloud adoption and transformation.

Death by Winning

Will Pemble

Entrepreneur and executive coach Will Pemble has been founding and growing businesses of all shapes and sizes for over 25 years. He is a certified stockbroker, flight instructor, product manager, technical trainer, commercial instrument pilot, behavioral analyst, and forklift operator; and he builds real-life roller coasters in his backyard. As the founder of web.com, he never had the same amount of funding as the big dogs, so he had to empower his team, turning them into his secret weapon—and that inspired his executive coaching career.

Pemble's self-effacing demeanor disguises his nearly-superhuman drive to succeed, a drive that can lead to unforeseen consequences! "I have an adventurous life," said Pemble, "and it's horrible and terrifying and fun!" He then quoted Norwegian explorer Roald Admundsen: "Adventure is just bad planning." In his CloudFest 2019 keynote, he told the crowd how his greatest success nearly killed him.

"Roller coasters or fireballs, which do you prefer?" Pemble asked the crowd. Not a rhetorical question—he then showed the audience a video shot in his own backyard: a functioning rollercoaster he built for his son after a trip to an amusement park. The rollercoaster had a fireball feature as well. "When he's 40 and he's at some conference or something, he'll be able to say to his mates, 'My dad built me a rollercoaster in my backyard!'", said Pemble, "and I wanted that cred!" The video went viral, as one would imagine: it was featured on Oprah and everything, and he's been reaping the benefits ever since: "People hire me as a business coach because of the roller coaster! It's kooky but it happens... a lot!"

KEY CONCEPTS

- Entrepreneurship
- Communication
- Business strategy

TAKE ACTION

- Develop a clear set of core values on which to base your corporate culture
- Refine your business goals, as well as what you do to reach those goals on a daily basis
- Don't be afraid of asking an outside expert for an extra set of eyes on what you're doing

WILL PEMBLE

CEO at GOAL BOSS

Will Pemble is an American entrepreneur and executive coach. As the creator of the Goal Boss Leadership Platform, Will is known for his innovation, dynamic style, broad experience, and genuine enthusiasm for business and life.He has appeared on Netflix, ABC's Good Morning America, Discovery Channel's Daily Planet, and countless other media. Will built and sold Web.com, and has been founding and growing businesses of all shapes and sizes for over 25 years.As a facilitator and keynote speaker, Will's feedback scores consistently rank in the 94th percentile, setting him apart from industry colleagues and peers alike. Will coaches his clients on leadership, team dynamics, strategic planning, scaling up, marketing, and business operations. Being an avid learner, Will has earned certifications as a stockbroker, Certified Flight Instructor, Certified Product Manager, technical trainer, commercial instrument pilot, Microsoft Certified Systems Engineer, Cisco Certified Network Associate, and Certified Professional Behavioral Analyst, and forklift operator, to name just a few. Will lives in San Francisco with his wife and two children, where his hobbies include cycling, rowing, pyrotechnics, robotics, and backyard roller coaster engineering.

Pemble founded web.com, in the hosting and domain business. “We had a couple of differentiators,” he said, “but, you know, mainly our domain name was kinda good!” He said that he and his team were mostly just lucky and hard-working—passionate about customer service but not a huge organization. “We made more money than we spent,” he said, but then he decided to join what he called The Race to the Bottom. He had the bright idea to fundamentally change web.com’s approach “without giving it a whole lotta thought!” Cue the deep discounts and diving deep into Google AdWords. “At the time it was a relatively easy thing to do,” he said, “and that’s why we did it.” The web.com team figured out how to drive traffic to their already-frictionless brand to sell domain names… at a loss… and then they invested actual money into this highly-questionable strategy.

Pemble said that web.com was growing consistently already, but then their customer acquisition shot through the roof—around 2,000 new customers per day. Just like how Factory Records lost money on each copy of New Order’s Blue Monday single, which became the best-selling single ever at that time; web.com’s growth through loss-leaders started to sink the startup through exponential infrastructure costs. “Everything went to hell in a bucket,” he said. “When you just scale something up, it doesn’t work predictably. Nothing about scale is straightforward!” With a grin he asked, “How can you screw up with a name like web.com?!”

Pemble was totally losing his mind, staring down the barrel of the end of his business and reputation. He contacted one of his investors, who advised him to visit some business-growth consultants to help get him back on track. “I got shit going on,” he replied, “I’m busy!” The investor basically said, “Cool, but if you don’t do this, I’ll cut your funding.” So Will went. The main takeaway from that meeting changed everything about his business and his life and everything he thought he understood.

He thought the problem was that he couldn’t rack servers fast enough or hire enough customer-service reps. Nope: “The stuff that got you to the success you have right now will not get you to the next level.” He learned that there were only three things that his team had to worry about in terms of business killers:

Communication—When you reach the limit of being able to express what you need, your business will stop, stall, or die.

Delegation—As a leader, your ability to get things done without doing them yourself is critical.

Time management—No matter how great a boss you are, there are only 24 hours in a day.

“These three things, I promise you, I have never seen a business that is struggling or stalled at that break point,” Pemble said, “when it doesn’t come down to one of these three things.” Or all three. “If you get a handle on those three things,” he said, “you get to decide how your business and how the rest of your life is gonna go.” That’s also why you need a coach, he said; just like an athlete does.

So Pemble changed the work culture at web.com… because that’s all they could afford to change. They identified five core values by which to move forward:

- **Teamwork**
- **Hard work**
- **Communication**
- **Delegation**
- **Time management**

Instead of buying more technology, Pemble’s team worked on what they could best work on: themselves. “Everyone who’s been in a bad relationship knows that it can’t be fixed in a day,” he said: it took web.com four years to dig the hole it was in, and it would take time to climb out. The new leadership system went a little something like this:

Goals (especially team-level) ➔ Team problem-solving ➔ Key metrics

… and those key metrics inform your goals, thus completing the circle. After he sold web.com, Pemble started Goal Boss to work with other organizations who need to embark on a transformational journey. It also has a SaaS platform to help companies manage their measurables and leadership systems. He left the audience with one key piece of advice in a world where tech offerings start to feel the same as one another: “You really, really, really need to find yourself a true differentiator,” said Pemble, “and it’s always gonna be your people!”

Should Cloud Companies Become Internet Cops?

Tatiana Tropina

Cloud computing professionals as cops? It's not science fiction. The recent EU E-Evidence Proposal would turn cloud computing providers into de-facto judicial authorities. Calls to expand the European Commission recommendations of March 2018 on tackling illegal content would make cloud companies into content police as well. Some countries already force cloud providers to monitor illegal content, setting perhaps dangerous precedents for tomorrow.

Recent internet legislation in Europe has been that especially frustrating combination of vague, far-reaching, and heavy on industry responsibility. (We're not saying the GDPR is boring, but it's very popular as a sleep aid—you can hear it read aloud in a soothing voice on an insomnia app called Calm.) Meanwhile, the European Parliament has just approved the entirety of the Copyright in the Digital Single Market Directive, including Article 17 (formerly Article 13) which shifts copyright-cop responsibility to platforms such as YouTube, Twitter, and Facebook; as well as Article 11, aka "the link tax". You may have already noticed that this directly contradicts e-Commerce Directive 2000/31/EC, which forbids requiring platforms to proactively enforce IP.

Biggie once said "Mo' money, mo' problems", but in this case that can apply to hyperscale platforms whose clients push out billions of content nodes. The Electronic Frontier Foundation (EFF) described the passage of the directive as "abandon[ing] common-sense and the advice of academics, technologists, and UN human rights experts."

Internet activists are doubling down their efforts to prevent this law from getting rubber-stamped in the European Council. If it indeed passes, the law must get synthesized into the laws of member states, which will take years—that means years of legal chaos. Meanwhile, a big-money cover charge to present content in Europe will only ossify the dominance of today's biggest platforms against upstart startups looking to change the game. This lines up with what Public Enemy producer Hank Shocklee said earlier at CloudFest, about the internet following the record-label model of consolidation and super-sizing.

What are the dangers of this approach to enforcement, and what should be done instead to really improve fighting crime online while safeguarding the privacy of users and following due process? In her CloudFest 2019 keynote, Dr. Tatiana Tropina,

KEY CONCEPTS

- Cybersecurity
- Human rights
- Corporate responsibility

TAKE ACTION

- Don't be afraid of activism
- Make sure you understand emerging internet legislation, and how your country will implement it
- Team up with your peers to defend your industry

TATIANA TROPINA

Cybercrime Expert at Max Planck Institute for Foreign and International Criminal Law

Tatiana Tropina has more than 10 years of involvement in both legal research and various applied cybercrime projects at the international level. This includes carrying out a cybercrime study for the ITU Global Symposium of Regulators 2010, serving as a consultant to the UNODC Comprehensive Cybercrime Study 2013, World Bank's World Development Report 2016, Atlantic Council's report "Big Data: A Twenty-First Century Arms Race", and many others. Tatiana was the first Russian lawyer to defend a PhD thesis on cybercrime (Far Eastern Federal University, 2005). She also holds a Master of Communications Management degree from Business School of Strathclyde University, Glasgow, UK. She calls Freiburg, Germany her home, but mostly lives up in the air.

Senior Researcher at the Max Planck Institute for Foreign and International Criminal Law, explored answers to these questions and share what cloud providers need to know about this newly-emerging reality. For purposes of the discussion, Tropina focused her keynote on cybercrime other than copyright infringement.

These legislation trends, said Tropina, "will change the game completely" in terms of policing cybercrime and monitoring illegal content. First we have to look at how the industry will deal with the collecting of electronic evidence.

The EU E-Evidence proposal and the US CLOUD Act is a legal arms race, said Tropina, "and they're racing down to the bottom." The US CLOUD Act allows data grabs through international government agreement, bypassing judicial channels. Tropina said that the EU responded by coming up with something she described as even worse. "This will touch not only Google and Facebook and other cloud giants," she said. "It affects any cloud provider." Tropina pointed out that, even within the EU, legal protections around data can vary wildly, but now providers will have to report to the foriegn authority directly. This doesn't turn private entities into cops, she warned: it turns them into de-facto judicial authorities.

The turnaround times for these enforcement demands are optimistic at best: six hours for emergency requests, which could normally take a week to fulfill, besides the issue of the veracity of a given demand. "This is an incredible lack of legal sovereignty for internet providers. How are they in a position to verify the facts?" asked Tropina. "Why are they in a position to verify them at all?" This all disregards existing mutual legal-assistance mechanisms, to say nothing of the lack of safeguards for both end users and the industry players who service them.

By turning the Cloud industry into a series of private police forces, you create extra-governmental bodies, unaccountable to any voter, who are forced to pursue online malefactors based on murky legislation that may not be interpreted in the same way across borders. In the meantime, said Tropina, Cloud companies will probably just lawyer up to deal with the incoming enforcement requests.

On the meta-level, Tropina said, there's a conflict between intermediary liability and intermediary responsibility. Furthermore, what prevents "bad guy" countries from doing the same thing to the EU or the US?

The frustration of legislators and law enforcement is understandable, said Tropina. Existing enforcement mechanisms are slow, and they require due process and safeguards. However, she said, creating these shortcuts is not helpful. The EU would have been better off improving other laws around data transmission while maintaining existing channels of judicial approval; rather than creating this new directive, which she evocatively described as "an ugly stillborn child."

As for policing illegal content, how do you draw the line between "illegal" and "harmful"? When dealing with mis- and disinformation, Fake News, hate speech, and terrorist content, we have to ask "harmful to who?" Who assess that, and who is liable for taking it down if the legal borders of prohibition are not determined? Under the existing legal regime hosting providers have a sort of safe harbor, in which platforms aren't responsible for taking down every single offending item. The reality, though, is that there's heavy pressure towards self-regulation, creating a culture of responsibility among this community of digital intermediaries.

As a lawyer, Tropina said that codifying that responsibility for platforms and service providers makes no sense. Who gets to sit on this "Ministry of Truth", she asked, and decide what's real and what's fake? The risk emerges of public-private censorship with no limits. Satire suddenly gets a big target painted on its back.

Tropina wouldn't exactly love it if those borders around harm and illegality were defined in law, she said, but instead we get something worse: laws without those clear definitions. "I do believe that law enforcement is the duty of the state," she said: the state has clear mechanisms, especially when it comes to criminal behavior—and those mechanisms are not flexible.

So, will Cloud companies become internet cops? "In some spaces, unfortunately, it is going to happen," said Tropina. However, they should not be. She remarked on the silence from the Cloud industry itself, even as academia, artists, and the general public are taking to the streets.

Even small providers will find themselves needing hyperscale monitoring tools: how do you plan on paying for that? More immediately, how do you plan on opposing laws that put your business in that position in the first place?

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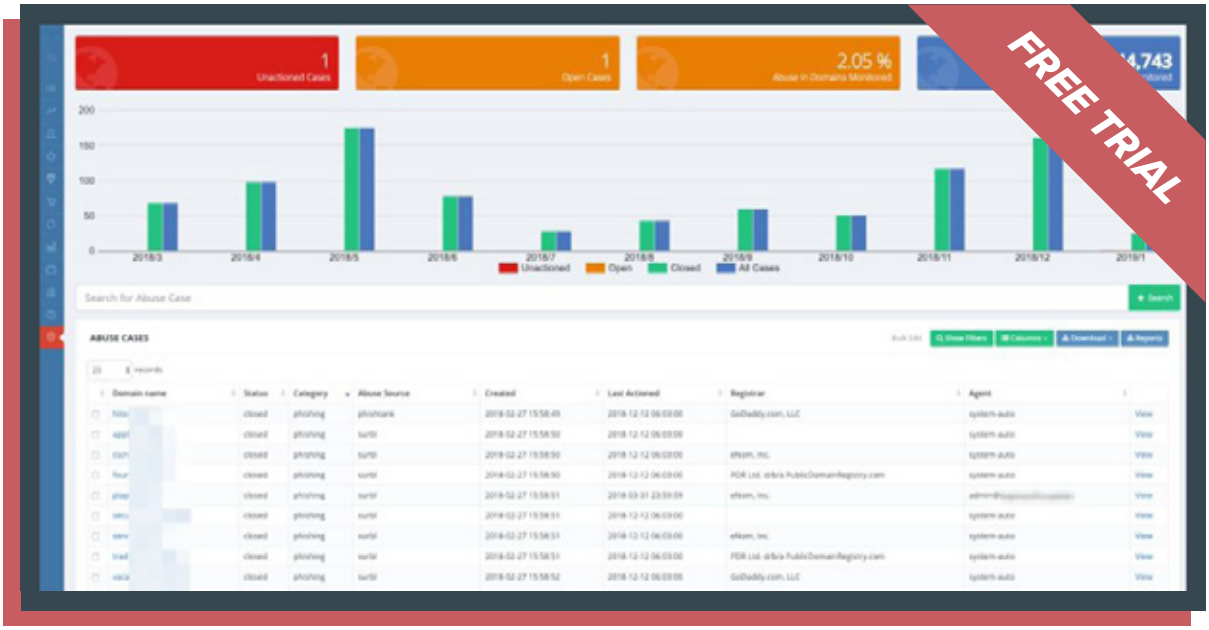

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