For Cloud Professionals, part of the On Cloud Podcast

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Title:	**What to expect in 2020 around Cloud? AI, edge, and improving security**
Description:	2020 promises to be an eventful year in the world of cloud computing. In this episode, David Linthicum and guest, Daniel Newman, Principal Analyst and founding partner at Futurum Research, reflect on cloud 2019, and Daniel gives his predictions for 2020. According to Daniel, 2019 was the year that we realized that the future is hybrid cloud, and in 2020, companies will face an overwhelming number of cloud deployment options they will need to carefully consider. AI and edge computing will play a larger role than ever, and security will be paramount. Daniel also notes that companies will need to hone their focus on building better cloud architectures and upgrading their security investments, but that they also need to realize that the real differentiator in cloud success will be their people.
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Operator:
The views, thoughts, and opinions expressed by speakers or guests on this podcast belong solely to them, and do not necessarily reflect those of the hosts, the moderators, or Deloitte. Welcome to On Cloud, the podcast for cloud professionals, where we break down the state of cloud computing today and how you can unleash the power of cloud for your enterprise. Now here is your host, David Linthicum.

David Linthicum:
So welcome back to the On Cloud Podcast, your one place to find out how to make cloud computing work for your enterprise. This is an objective discussion with industry thought leaders who provide their own unique perspective around the pragmatic use of cloud-based technology. Today on the show we have Daniel Newman. Daniel is Principal Analyst and founding partner at Futurum Research. And Daniel spends his time researching, analyzing, providing the world's best and brightest companies with insights on how to do digital transformation, disruption, innovation, and how the experience economy is changing how business is done. And he's also a seven-time bestselling author. So, thank you for coming on the show. Tell us about those books, Daniel. I'm an author myself, so I always like to hear about fellow authors and what they publish.

Daniel Newman:
Yes. So, over the last eight years I've written seven books, which some people seem to think is crazy. But there's just so much going on, and things are changing so fast. So, the last couple of books I've focused on two major topics. One is digital transformation, and the other is the future of work. The most recent book was published in July, and it's called, "Human Machine," and it's all about basically the future of our partnerships with machines. That sort of reflects upon everything from automation, AI, cognitive, and how people and technology are going to get together in the workforce.

Right before that, I wrote a book called, "Futureproof," which is the seven key pillars for digital transformation success. And in that book, I spent a lot of time focused on what are the commonalities between companies that are having the greatest amount of success in terms of achieving digital transformation. So, of course, we talked about cloud, and we talked about AI, and we talked about big data, but we also talked a lot about culture and people and experiences, which ultimately are the "why" any business does what they do. However, it's always fascinating to do research and dig deep under the hood of companies, the companies that people think are brilliant and the companies that people are uncertain about. You just find so many little nuances that separate those that are able to make great strides and those that often run straight into the wall.

David Linthicum:
Yeah. This is something that's near and dear to my heart. I think a year or so ago I wrote this article called, "The Brandpocalypse," and really how a lot of companies out there just kind of aren't getting it, and kind of how their industries are going to be disrupted. And they're going to be pushed out of their respective industries by some small disruptor, someone we don't see coming. You know, the examples that we have would be taxi cabs, and video stores, and all of those sorts of things. We're seeing the same kind of disruption coming to manufacturing, auto building, the ability to provide healthcare insurance, the ability to provide healthcare. And there's just not one industry out there that's not going to be affected by it. And I think that it really disturbs me when I meet with companies that don't get it and don't look at this with a sense of urgency that they need to futurize what they're doing in order to protect their market share. What are your thoughts on this?

Daniel Newman:
Yeah, I think every industry right now is vulnerable. And you sort of hit it on the head, David. There are certain examples of industries that are commonly used. You mentioned taxi cabs and you mentioned video stores. And those are some of the fun disruption examples. But it really is hitting hard in every industry. It's the difference of companies that are able to adopt data and analytics and apply them into workflows. It's the ability for companies to look at modernized architecture so that they can upgrade applications to give workers the opportunity to perform and be more productive. So much of it does fall into, though, the experience side of it.

Right? What are these investments in technologies actually enabling? How are they enabling consumers? How are they enabling the employees and workers? How are they employing management and executives? And then of course what results are we seeing? Because we're in a world where everything is measurable. So oftentimes when I hear about how there's no way to measure something ephemeral, or there's no way to measure sentiment. And I say well, really, yeah, there is. There's always ways to measure impact. And so, companies really need to be very focused on how can their investments be measured and be put to the test, especially as it pertains to technology and the impact that those investments have on the people in these organizations.

David Linthicum:
So, let's look back on 2019. It's always this time of year when I get those calls from reporters about what was the significant impact of cloud in 2019 and what was the significant impact in terms of digital transformation. I would love to get your input on this. What trends in 2019 did we see in digital transformation that were really earth-shattering, and what things are likely to become earth-shattering moving forward? And I think the latter is probably more important than the former, wouldn't you think?

Daniel Newman:
Yeah, 2019 has been a really interesting year to sort of watch a few different trends materialize. But this has really been the year of architecture. So, we heard for the last five or six years that everything is going to go to the public cloud. And now that that sort of boondoggles behind us and we've come to realize that that's just not the case. Right? With nearly 80 percent of data and workloads still living outside of the public cloud, we've come to the age where the enterprise IT decision-makers, the CIOs, and other key roles and architects are saying it's going to be hybrid. I think we've all come to the agreement that the future is hybrid.

So this has really been the year where all the players have started to lay their foundations of what that means, meaning it is a world that's going to be driven by containers and microservices, it is going to be a hybrid world where the hyperscalers will provide hybrid solutions that are going to be consumed in a public cloud or IaaS-like fashion. And then of course we're seeing a ton of momentum in platforms and in different capabilities being democratized in the cloud. Things like GPU, TPU, AI workloads being able to be accelerated in the cloud.

We're also, I guess if you want to look at platforms as well, we're seeing more democratization of developers. Big investments by software companies to add low-code/no-code capabilities to be able to implement technologies like AI for everyone to use, whether or not you have significant developer skills or just very, very basic ones thanks to these low-code/no-code platforms that are being built to help companies leverage technologies and leverage data more effectively. So, we're seeing all that.

And then probably one last wrapper, David, I would put around it is we are also seeing this migration towards simplifying data. There's kind of a race right now with a couple of different major players. This new cloud information model that's being delivered by the likes of Salesforce and AWS. And then you've got this one data model, or ODI, open data initiative, that's being developed by SAP, Microsoft, and Adobe. And so we're starting to see in the cloud how data is going to get imported and live in the cloud and then be utilized across many applications. So, there's a lot of trends going on. But it's a hybrid world, and the ability to utilize data across your entire stack of applications in a seamless manner are really two of the big focuses that started to come up this year that are going to only accelerate in 2020.

David Linthicum:
So when can we see the utilization of data let's say cross-cloud brands, you know, and the ability to deal with the three big ones out there and the ability to have data stored in each one of them and the ability to have virtualized access to that data going forward. What kind of year and what kind of timeframe would we see them and also what would be the use cases?

Daniel Newman:
Well, I think we're going to start to see this immediately. I think it's already starting. I think you're starting to see connectors that are being built that enable this. Again, the utilization containers and container-based platforms that allow these applications to be modernized and moved across two, three different public clouds and concurrently run on-prem are really being developed.

Now, the challenge is not every app can be modernized. And especially modernized in a fast fashion that allows it to be utilized in some of these newer architectures. So we're seeing the hyperscalers. Microsoft recently came out with Azure Arc, which is designed to address this new multi-cloud environment. But we're seeing other companies. We're seeing legacy OEMs. HPE just launched a new container service. We're seeing Dell, they have new architecture on PowerOne incorporating automation, multi-cloud, and then they've added a whole series of services. So, you're seeing that the OEMs are doing it. So it's coming from every angle, David. I think the real question is how quickly can organizations adopt and address all of these to actually realize time to value. And with so many different options, the companies are going to have to sort of pick and choose carefully which platforms they engage with.

And there's another variable in there, and that's the massive utilization of virtualization from companies like VMware. So, a lot of companies have taken that approach. And of course VMware has partnered with AWS and has launched its own container service that also is addressing multi-cloud in Tanzu. So, you have all of these different companies that are approaching it. And even then there's Opensource and OpenStack, which, as may people are probably aware, IBM spent over $34 billion to buy Red Hat to modernize cloud and build cloud-native applications and to enable companies to update their applications to live in modern IT environments.

So I realize I've kind of gone all the way around full-circle your question, but I think this goes back to some of the transformative behaviors of the companies. Are the companies modern in the sense of able to be adaptable and agile? Are they invested? Do they have the resources at their disposal that they need? Have they picked the right partners and are they able to deploy at scale? I think in 2020 you're going to see a lot of this starting to be deployed. But this is going to take years. Just like public cloud has only grown to less than, or around, 20 percent of all the workloads after, what, a decade-plus of being in-market, companies aren't going to change overnight to these perfect, multi-cloud hybrid architectures. It's going to take a long time, especially with all the monolithic applications that are running enterprises that aren't going anywhere any time soon.

David Linthicum:
So, what do you think in 2020? What are the big battles going to be? Is it going to be dealing with the complexity of multi-cloud environments, dealing with the complexity of security, dealing with ultimately your ability to manage and monitor these things, operational issues in terms of how we're going to get these things into production?

Daniel Newman:
I think there's a couple of big battles, David. And I think one battle is going to be every company is going to be overwhelmed by their options. So, as I mentioned, we're seeing up and down the stack. So, we're seeing that IaaS providers are all delivering different solutions for hybrid cloud and they're all basically wanting to gain mindshare. And then you're seeing the OEMs do it. So, I mentioned IBM and HPE and Dell. And they're all coming and saying this is the best way to do it. And then you're seeing Microsoft and Amazon and Google Cloud Platform has their own iteration of how it should work, and then the open source community has an iteration of how this should work. And so, if you're a CIO or an IT decision-maker, you're having to really explore and examine all these options. And adopting the wrong one could be costly in terms of time to market. It could be impactful in terms of a company's ability to take advantage of being as fast and flexible as companies desire to be these days.

I think another battleground for 2020 is going to be AI. And again, we're not talking about a machine is coming to take over your world AI; we're talking about getting data organized. You know, warehouses and getting in-memory databases functioning, getting the data moved into the cloud so that it can be accessed and enriched using a lot of the AI capabilities that are available in the cloud to companies. And then being able to start to utilize that data to run more efficient and important analytics and doing this at speed. Because what we're going to start to see is this moving to the cloud, but this cloud is also going to push this probably next big trend that we haven't really even touched on yet, which is the growth of the edge.

David Linthicum:
So, let's talk about the growth of the edge. We've been talking about edge for some time. Edge has been used for some time. But what does the edge look like going forward that's very different than the edge looked in the past? Right now, you know, people think it's IoT devices and the ability to localize processes on these devices, but it's more than that. It's the ability to kind of push the compute out in some kind of a manageable, scalable way outside of centralized cloud computing platforms to different environments that are close to the data that they're consuming. Or, am I oversimplifying the issue?

Daniel Newman:
No. I think that was pretty well said. I think the edge started out as sort of simple sensors and IoT, right? IoT was its own bucket. And now the IoT is becoming a much more sophisticated network of devices that include conversion infrastructure, right? It's compute, it's storage, it's network. These devices are – the form factors are being built to be able to run at the edge. But the amount of processing for technologies like smart automobiles in cities, for smarter retail environments, this is a full compute stack outside of the data center. And companies are realizing it and they're seeing the scale. The data out there about the size of this opportunity is that it's going to be significantly larger than what's going on in cloud. Because ultimately, it's going to be done at a scale that is hard to imagine. But when every device is connected and requires compute and requires the ability to quickly connect to these 5G networks that are being deployed and these next-generation wi-fi, you've got to have the horsepower.

And this is what ultimately drives those experiences that everybody is so excited about; it's that real-time ability to have the data near the compute to be processed, analyzed, and to perform some type of intelligent operation as a byproduct of it, and also to manage what workloads and what data actually is transported to and from the cloud. Because if you're looking at all the data that's being collected at the edge, not all of it can go back to the cloud. So more processing, more AI, more analytics are going to have to be handled at the edge, which ultimately is going to look a lot like a cloud, but it's going to be much smaller and done in much larger volumes as opposed to what we're used to today with the current layout of the data center.

David Linthicum:

Now, as we're deploying these things, one of the things that I'm running into as a challenge is how do you deal with management, monitoring, maintenance of the systems, and then dealing with security and pushing advanced security back down to the edge-based systems in ways that they'll be decoupled at times. So how do they protect themselves?

Daniel Newman:
Yeah, it's a great point that you bring up. And it was in the back of my mind at two or three different times in this conversation, David, is security. Not just securing the edge but securing everything. So, I think a trend into 2020 and 2021 is actually going to be stemmed upon our desire for more what I'd say privacy and digital trust. So, there's a growing concern and a growing awareness of the way data is being utilized by the enterprise and by companies in order to mine individuals. And obviously we've heard about so many data breaches in so many different industries. And these are not industries that have inexperienced professionals; these vulnerabilities are created by just the sheer scale of accessibility to the networks that are almost impossible to protect when you have thousands of edge devices, sometimes more than that. Especially adding the fact that we have users that have devices that tap into these networks that are often not very well-educated on security.

So you have the ability to secure through your SIM, or your logging, and ability to quickly be notified to deal with intrusion and manage that sort of issue. And then you have security that comes down to education and knowledge, where employees that are toting around powerful compute devices in their pockets mindlessly with very little concern about security or the fact that the email data that might be on there or the application data that might be on a laptop could easily be accessed, and through that access could cause many vulnerabilities that could be down the line an issue for central IT or company's applications.

So, I see a greater focus on security. I see more investment being made. Although, oftentimes, there seems to be a little bit of a dissonance between spending on security and dealing with the cost of a breach. But I see as the public continues to express its concern – and we've done research on this, David, where people overwhelmingly feel that they've lost control of their data. And companies that continue to not protect it and not show that they can be trusted will in the long run be impacted through things like Net Promoter Score and through brand sentiment. It takes time. It doesn't happen overnight. And certainly, the value of any application can warrant or detract or push a user to be willing to sacrifice certain privacies. But more and more you're seeing efforts. And even some of the world's largest and most prestigious brands are really pushing that privacy narrative today.

David Linthicum:
So a quick question. What are the three things that enterprises should be focusing on now and paying attention to now?

Daniel Newman:
Well, I think we have sort of covered them, so I'll do two technologies and then one sort of more of a soft skill. I'll say the first is going to be managing the architectures to be able to handle scale. So being aware and addressing the fact that public cloud isn't going to solve all the problems and that chances are the environment is going to have to be hybrid. So, investigating, determining the right solutions to provide flexibility to upgrade applications to be cloud-native, but to concurrently run what's in your application workloads and what's in your data centers successfully during that migration period. So exploring the frontier of many sound products to figure out which is going to be the best and most capable for the workloads and applications that your company currently runs.

The second thing – I am a huge advocate of trust. So we talked about security. But I think asking the question is can customers, users, shareholders, stakeholders in your organization feel confident that the ability to secure data and treat customer data well is part of the fabric of your organization. To date, companies I don't think have been penalized as significantly as they should be for the abuse of data. But I think more and more companies are going to be exposed for this, and I think in time it will put companies out of business. So it's an area that if you can focus on, if you can spread that sort of narrative of how you're focusing on it and how technology and good stewardship and good education of the workforce is being put into place to make sure that employees understand the importance of it, I think there is value in that. And that will help create a stronger sentiment in the market for a brand.

And the third thing – and like I said, this is not a technology thing. But the research we've done overwhelmingly shows that culture is the difference-maker. And so many companies focus on technology first. But digital transformation, if you just think about the word and the breakdown, digital is technology and transformation is people. And companies that lead with technology, as opposed to leading with people, constantly run into hurdles in terms of getting by. And especially the technologies that are seen as somewhat intrusive. Technologies, whether that's big data and analytics, whether that's automation, RPA, whether that's security and privacy. Companies that want to be able to get the benefits of technology move fastest when they create a strong culture. And that culture has to understand why technology is playing a role, how the individual employees will be impacted by it, and how those same employees can help contribute and become part of this evolution and revolution that's going on inside of the enterprise. So look at that. I'd say focus on architecture, take privacy and security more seriously, and build a culture that's not only resilient, but that really embraces change.

David Linthicum:
So where can our listeners find more of your work on the web?

Daniel Newman:
I'm all over. I'd love to have you come check us at futurumresearch.com. Many podcasts. You can link to them from there. I also have a regular column on Forbes. And I can also be found regularly on marketwatch.com, was well as Network World.

David Linthicum:
Well, thank you very much. I enjoyed the conversation. And if you enjoyed this podcast, make sure to like and subscribe on iTunes or wherever you get your podcasts. Also check out our past podcasts, including On Cloud Podcast, hosted by my good friend, Mike Kavis, on his show, Architecting the Cloud. Also check out his book by the same name. And if you'd like to learn more about Deloitte's cloud capabilities, check out deloittecloudpodcast, all one word, dot-com. If you'd like to contact me directly, you can reach me at DLinthicum, L-i-n-t-h-i-c-u-m, at Deloitte.com. So until next time, best of luck with your cloud projects. We'll talk to you guys real soon. Take good care.

Operator:

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