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Enterprises get to work in the cloud

Digital transformation, research and collaboration, and moving critical workloads to the cloud

Stories in this package include:
*** Capital One rides the cloud to tech company transformation**
*** American Heart Association looks for cure in the cloud**
*** Enterprises start to migrate critical legacy workloads to the cloud**

Capital One rides the cloud to tech company transformation

This bank wants to function and feel like a technology company

Sharon Gaudin | Computerworld

Capital One Financial Corp. is taking big steps in its transformation into a tech company.

The Fortune 500 company, one of the top 10 largest banks in the U.S. with $313 billion in total assets, wants to be a tech company that also is a top financial services provider.

It's a change in strategy and focus, said Rob Alexander, CIO of Capital One, based in McLean, Virginia. Among its plans as it transitions to a "tech" company are: an open, collaborative workspace; IT workers with new skill sets; fast-paced apps; a service evolution; and a focus on leading with cutting-edge technologies.

"We need to be a high-productivity software engineering organization," Alexander said in an interview with *Computerworld* at the AWS re:Invent conference in December 2016. "The winners in banking are going to be really great technology companies. It didn't use to be the case historically that you really needed to be a great software development company and a great analytics company, but it's really important today."

As part of that goal, Capital One needs to be laser-focused on the cloud, and the company announced this week that it chose Amazon Web Services (AWS) to be its predominant cloud infrastructure provider.

While it's a solid move to partner with a cloud vendor, Judith Hurwitz, an analyst with Hurwitz & Associates, noted that there also are some big risks attached.

"The disadvantage of going with a single cloud vendor can be significant," she said. "Many companies want to be able to use several vendors so that they can have some control and move if another vendor is more innovative or more cost effective."

Capital One was thinking about that risk. The company is still doing smaller cloud projects with other providers, including Salesforce.com, Microsoft and Google. However, AWS will be their primary partner in moving to the cloud.

Capital One started exploring the possibilities of cloud computing in 2013, mainly doing development and testing in its innovation lab. By 2015, it began using the cloud in production but only on new and small projects.

But the company's developers were getting frustrated because they couldn't do more sensitive and higher stakes work in the cloud. That has all changed.

With the AWS partnership, Capital One is developing new apps for the cloud, while also steadily migrating its legacy applications.

The bank's mobile app, one of its primary customer-facing mediums, began running on the AWS cloud in the past month.

Every development team they have is either working on the cloud now or has a plan to transition their applications to the cloud. They also have plans to move their mainframe applications, which could be decades old, to the cloud.

"I think there's a power in a strategic declaration saying we are going to be cloud first," Alexander said. "It changes how you build your apps. It changes the direction of your investments. You're not investing in building your own infrastructure ... It's a different way of operating."

Capital One is creating this different way of operating because of a decision it made in 2010.

Driven by the growing importance of the internet to their business, company executives decided to change their mindset and stop thinking like traditional bankers.

"We needed to deliver capabilities at a faster pace because we were working like a bank," Alexander said. "The recognition that we needed to be a different kind of company happened... It is an enormous change to do what I'm talking about. There's a lot of learning that happens along the way."

Capital One is in an industry that could see some dramatic changes to the way it operates in the coming years, said Jeff Kagan, an independent industry analyst.

"This is all very forward thinking of them," Kagan said. "It is very innovative for a financial company of yesterday to think like a tech company in the money space tomorrow. This is the kind of thinking every company that wants to be a winner going forward must have."

Hurwitz said it's smart for Capital One to get out ahead in its efforts since it's a move that Capital One, and its competitors, would eventually have to make.

"These companies don't have a choice," Hurwitz said. "They will need to be technology companies. They have to offer their services in an agile and innovative way or they will risk losing market share."

But why act like a tech company and not just an innovative bank? It's a matter of speed, agility and meeting customers' quickly changing needs, Alexander said. It's also provides the opportunity to use the latest technology, such as the cloud and artificial intelligence, to drive its business.

The staid banking industry hasn't been known for its quick turns and maneuverability, but that's what Capital One wants.

"Consumer expectations of what they should get from a financial services provider are changing," Alexander said. "The winners will be those who do all the important things banks do... but will also be really great at building technology solutions for customers... Thinking about your mobile app as a product that lives on and evolves regularly is something that tech companies do but not necessarily banks. It's a different way of operating. It changes the way we think about and build applications."

Capital One needs to be able to turn out quick updates to its apps and services, adding new features and wowing its tech-savvy customers. The company is also building deeper analytical capabilities, exploring the use of machine learning for customer service, fraud protection and cybersecurity.

So how does a bank with an IT organization transition to a technology organization?

The first step is to look at tech companies that are nailing it and model after them.

"If you want to be a great tech company, you need to see what they do and figure out how to be one of them," Alexander said. The company looked at the operations of its new partner, Amazon, along with Netflix, a major AWS user and cloud pioneer, and Google, for its work with machine learning.

"You can build a better financial services company by building better data and analytics," he added.

Not without risk

The problem, according to Rob Enderle, an analyst with the Enderle Group, is that by focusing on the transition to a tech company, a business risks losing sight of its main task.

"Some companies generally enter the effort with a lot of money and no experience and exit with no money left in the project but a deep understanding of why they never should have done this in the first place," Enderle said. "They often don't get that this isn't a 'build it and they will come' market."

The problems often arise from not keeping the customer in mind from the outset. There also the risk of using apply new and innovative technology thinking but then losing focus on the primary goal.

For Capital One's Alexander said he has the customer front and center in his mind.

"I think it will be really important for us to have a differentiated Capital One experience with customers," he said. He added the company is exploring the use of chat bots as a different way to communicate with customers. "If we can show up on their mobile phone, if we show up in Amazon Alexa, when they go online, when they pay with their Capital One credit card... they'll see the value-add we're making."

Changes to the IT team and culture, too

To get there, Alexander has been transforming his IT team.

Some IT workers were let go, though Alexander did not specify how many were terminated, so they could reskill the department, retraining many employees and hiring others with skills that range from the cloud to machine learning and agile software development.

"We've been hiring thousands of software engineers for the last five years," he said. "Principally, we've been about hiring new talent with modern skills... The software engineering talent is in high demand... If you're going to attract top engineering talent, you need others for them to work with, you need to let them build and ship product fast."

One of the ways Capital One is trying to attract more talent is to offer them a hipper, upscale, open-concept work environment.

The office would have a Silicon Valley feel, with moveable furniture, snack stations and walls that can be written on. It would be a change from the traditional buttoned-down suit environment normally associated with a bank.

"We want to tell our story of what it feels like to work at Capital One and how different it is to work here than at other banks," Alexander said. "The physical space is designed to look like a modern tech company... We want to accommodate the way people want to work, and we feel like it's important to have high-quality physical space to attract the talent we want. It's jeans and casual. It's snacks at the galley."

He continued: "How do we leverage the tech revolution that is happening in our domain? I think we're looking at a pretty dramatic shift for our company. When you think about the makeup of our organization, it'll have the feel of a technology company. It will show up in the pace of innovation, which we see really picking up, and the quality of experiences we can deliver. It'll show up with us winning in the marketplace, ultimately."

American Heart Association looks for cure in the cloud

Scientists around the world can share and collaborate on research in AWS cloud

Sharon Gaudin | Computerworld

Executives at the American Heart Association are betting that the cures for heart disease, stroke and diabetes lie in the cloud.

The heart association (AHA), a nonprofit organization that funds research on heart disease and promotes public health policies, is working with Amazon Web Services (AWS) to set up a cloud-based system where scientists from around the world can store, share and analyze research data.

Making that data available in the cloud could accelerate research and lead to a cure for cardiovascular disease, which is the top cause of death worldwide.

"One of the biggest obstacles we recognized was finding a way to create a forum for more rapid and cutting-edge access to data," said Nancy Brown, the association's CEO, in an interview with *Computerworld* at the AWS re:Invent conference held in December in Las Vegas. "This is a game changer for science and research."

After a year of planning, the heart association launched the project using the AHA's Precision Medicine Platform in mid-November, creating separate clouds for the 10 research organizations participating in the project, along with one overarching cloud.

The AHA, which has previously used the AWS cloud to store employee and donor data, such as volunteer histories and contact information, expects the list of research partners to grow, with each one getting its own cloud.

For instance, the Duke Clinical Research Institute, an early participant in the project, is storing its 30 years of anonymous patient records in its own cloud.

However that same data also has been copied to the one major cloud, where other researchers can access, search and analyze it.

This keeps the institute's research data untouched on its own cloud so other scientists can't change the original information, while also making a copy of the data accessible to researchers around the globe.

Participating scientists are not giving up their studies and data but making it available in the AHA's cloud.

"To push new novel discoveries, we need the ability to allow scientists and researchers to have access to multiple data sets," Brown said. "There's a lot of data out there -- data from clinical trials, data from hospitals and their electronic health records, data from the Framingham Heart study. Traditionally, all of that has been kept by individual companies or data owners."

She explained that if a researcher is studying, for example, the effects of a new cholesterol inhibitor on African-American men under 35, he would have to go to each academic institution, research lab and pharmaceutical company that is doing related research and ask each one to run a custom study on its data.

If 10 organizations agree, the researcher still is left with 10 different data sets coming in at 10 different times – and some data may not come in at all.

However, if all the scientific data is stored in the AHA cloud, the researcher could access it all without all the bureaucracy, making his work faster and easier.

"Right now, an average scientist can't get access to a pharmaceutical company's clinical trial data," Brown said. "It's not open and available to the public. The bureaucracy around many of these studies is significant. We want to push the concept of open access to data and the idea of collaboration. Without the cloud, that's not possible."

The cloud allows easy sharing and collaboration in a way that traditional storage could not. This cloud project could mean significant changes in the way researchers do their work and the information they can use for it.

"The idea has merit," said Rob Enderle, an analyst with the Enderle Group. "If you can combine and correlate the massive amount of research that has been done, you'd likely get to a cure much more quickly. Up until now, most of these efforts were siloed, and that has resulted in an impressive amount of redundant work and lack of progress given the massive amount of funding going into the various efforts."

One issue is that these research efforts have largely been competing and not cumulative.

"The people doing this likely could be considered heroes because they are putting progress ahead of self-promotion," Enderle said. "I hope this changes the way research is done. Saving a life is invaluable and we are talking about saving thousands, if not millions."

Jeff Kagan, an independent industry analyst, said the AHA's project shows one of the big upsides to using the cloud.

"It creates that place where researchers can pool their resources in a way where one plus one equals three," he added. "I think the cloud is a great place to bring all sorts of scientists, doctors and researchers together."

Brown noted that AWS is donating its cloud computing services to the project, while the AHA is adding financial resources and pulling in research organizations.

"Many things are on the brink of discovery and we intend to push them by using the cloud," Brown said. "This is the beginning of what we know will be a movement because of the response we're getting from the scientific community."

Enterprises start to migrate critical legacy workloads to the cloud

After gaining cloud experience, they look to make the bigger moves

Sharon Gaudin | Computerworld

Now that major enterprises have gotten their feet wet with smaller cloud projects, they're beginning to focus on migrating large, critical legacy workloads.

That's the take from Stephen Orban, head of enterprise strategy at Amazon Web Services (AWS).

In an interview with *Computerworld* at the annual AWS re:Invent conference here this week, Orban said the next wave of cloud computing could be focused strategically on legacy migration.

And while it's always tougher - and riskier -- to move big, mission-critical workloads and services, at least IT departments have gotten experience working with the cloud so they're not going in cold.

"The pace and the deliberate focus on how much they want to migrate has increased substantially across a lot more customers," Orban said. "Capital One has teams dedicated to... migrating existing workloads. We're seeing companies who increasingly have made AWS the new normal, but sometimes they're hamstrung by how much time they have to spend on their legacy systems.... They want to start migrating."

Zeus Kerravala, an analyst with ZK Research, said this point in the development of cloud computing reminds him of virtualization in the late 1990s. "The initial wave of adoption then

was about companies trying new things, not mission-critical workloads," he said. "Once organizations trusted the technology, major apps migrated. Today, virtualization is a no brainer because it's a known technology with well-defined best practices. Cloud computing is going through the same trend today. "

It was smart for companies to start out experimenting with the cloud and trying new things with non-mission critical workloads. Now, it's time to move on bigger projects.

"Now that companies are starting to trust the cloud, expect to see faster, broader adoption," said Kerravala. "Eventually, we won't think Does this work in the cloud?' because we know it will."

He noted that early adopters are, naturally, jumping first in terms of moving legacy systems. Once other companies see how that goes, they'll likely follow.

"The problem with legacy workloads is they often need to be re-written," said Kerravala. "We might see some 'lift and shift' happening, where a workload is picked up and put in the cloud, but ultimately that app needs to be rewritten to be cloud native."

Focusing on a migration strategy is a natural progression and an interesting one for many companies that have been confused about how to jump into the cloud.

During the opening keynote earlier today, AWS CEO Andy Jass said he found many businesses thinking that the cloud was an all-or-nothing proposition. Jassy said AWS has worked to let customers know it's OK to run a hybrid shop with some workloads in the cloud and some on premise

"Any IT organization that's been running its own operation for some period of time is going to have hybrid as its journey," said Orban. "We're doing everything we can to provide help to them."

One of the biggest challenges of a major migration involves the people more than the tech, according to Orban. IT workers might be hesitant to learn new cloud technology and expand their skills.

That's one of the first issues IT executives need to tackle.

"For every IT professional in the world the cloud is the biggest opportunity for people to learn new skills that will benefit them for a long time," said Orban. "But people are afraid of what they don't know. Anxieties will cause a bit of a delay in how quickly an organization is able to move."

To get started, execs should put a training and certification program in place.

"There's building muscle memory, becoming cloud fluent, the ability to make better faster decisions about migration strategies," Orban said.