The Evolving Role of the CIO

A Google Cloud Collection
Mobility and the cloud rank as the most critical technologies in the workplace today. They also transform the role of the CIO as IT becomes a strategic partner in the business and shifts from enforcer to enabler.

In this Google Cloud collection, we harness the collective experience of Google’s SVP for Technical Infrastructure, Urs Hölzle, and Google’s CIO, Ben Fried, along with other CIOs and industry leaders. Together, they discuss topics on the mind of every technologist concerned with workplace innovation:

**The power of personal technology.** The way we work has changed forever because people have brought the personal tools and devices they love into the workplace. How can the enterprise embrace this change to elevate performance, drive innovation and accelerate business processes?

**Moving to the cloud.** Urs Hölzle announced across-the-board 10 percent price cuts on Google’s Compute Engine, setting a new standard for economics in the public cloud. With the price of computing plummeting and its impact on business agility and innovation, it’s not a question of if enterprises will move to the cloud, but how.

**Security** is top-of-mind for IT leaders, for good reason. Google’s Director of Security for G Suite, Eran Feigenbaum, shares how Google keeps corporate data secure.

Read on to learn about the evolving role of the CIO and how IT can become an agent of enterprise transformation.

**The Google Cloud team**

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When Google CIO Ben Fried talks about his job, he gets fairly animated. "I've been in IT 30-something years," he said at Atmosphere Live. "I can't remember a time when there was so much change happening at such a rapid pace in so many parts of the technology landscape. Mobile, data, the cloud — these and ten other technologies are all moving at incredible speed."

### What should every CIO understand about today’s IT?

The pace of change for IT is driven by employee demand for consumer technologies, combined with the opportunities they present for business transformation. Fried makes the point that we can't rely on the old change management cycles. Skilled tech support people, who understand how to roll out new technology at the speed the tech industry delivers it, are incredibly important. If you can’t move at the pace of change, after all, you’ll always lag behind.

While some CIOs may still fear the intrusion of personal devices and cloud apps into the workplace, Fried sees it differently. Technology advancements in the consumer space, he says, offer infrastructure and development platforms that give business transformation a major head start, so it can happen at a much lower cost. Now, "We don't have to write the checks that pay for the R&D and the innovation that's creating these technologies," says Fried.

Rather than trying to master every aspect of IT, Fried encourages CIOs to focus on solutions that can really make a difference for their businesses — creating customized, enterprise-ready software that builds on consumer technologies.
Most of your people use the cloud already. You can help them end the confusion caused by using an enterprise tool set that's completely divergent from the personal tools they know and love.”

Ben Fried
cio, google
Here’s a Google example:

A couple of years ago, Fried noticed the company was spending a lot of money on outsourced videoconferencing systems, but they owned all the technology in-house — so he asked Google engineers to build an in-house system. The new system was so successful internally that customers who visited began asking about it, and Chromebox for meetings was born.

“"If you’d told me before I took this job that I’d be presiding over 9,000 in-house videoconferencing systems,” says Fried, “I would have said, ’What? That’s the CIO’s job?’ But actually, it’s an amazing source of innovation for us, and a real point of pride for the company.”

What are the big challenges for CIOs?

In this period of history, the pace of change continues to increase. “Two guys in a bedroom can build an app that will be used by a million people the next day,” says Fried. “That’s incredibly fast.”

Keeping up with that pace requires being open to cloud computing. For IT leaders still hesitant to make the shift, Fried makes two points. “First, it’s not as hard as you may think,” he says. “Most of your people use the cloud already. You can help them end the confusion caused by using an enterprise tool set that’s completely divergent from the personal tools they know and love.”

The second point? “In the end it’ll make your company better,” Fried says. “Moving problems to the cloud means moving them out of your mind... it lets you deliver way more in the areas that are much more important for your business than these problems that can be solved in the cloud.” For Fried, that means more time to think about “differentiating Google, making Google a great place to work and making Googlers the most productive people in the world.”

That’s how Google defines innovation, but each business is different. To create a culture that supports innovation and get a handle on your evolving CIO role, says Fried, you have to decide what it means with your team, and move forward from there.

To hear more of Ben Fried’s thoughts on business transformation and mobility, watch his interview at Atmosphere Live.
Many of us are only beginning to realize the full magnitude of recent advances in cloud technology. The topic is often thought to be synonymous with cloud storage or software-as-a-service. However, the cloud today goes beyond simply moving legacy applications or services off-premises. It enables businesses to transform the way that they think about technical infrastructure.

Cloud computing offers significant business advantage, according to Urs Hölzle, SVP Technical Infrastructure at Google. The economics alone demand attention. Hölzle suggests considerable company IT savings through use of the cloud:

- Not having to build your own on-premise data center
- Avoiding tedious infrastructure management, ceaseless updates and endless tweaking for bugs
- Built-in scaling and expansion for rapid, efficient, smooth growth

Yes, the cloud’s cost savings are vast and compelling. But as Hölzle emphasizes, costs aren’t the most important driver steering companies to the cloud — innovation is. Google’s success with large-scale cloud computing is noteworthy not as an isolated instance, but as a vanguard indicator that the cloud is changing all industries, all of technology. Work on any device, at any time, from anywhere in the world: this connected experience, which shapes so much of consumer technology today, is a product of the cloud.

Seeing these trends, many people began to ask whether or not they should move to the cloud. That question has changed: It’s not whether they should move, but how.”

— Urs Hölzle
SVP Technical Infrastructure, Google
With the cloud, the power to build new products and features to delight your customers and win future customers can be distributed through your entire business.”

Urs Hölzle,
SVP TECHNICAL INFRASTRUCTURE, GOOGLE
As Hölzle states, “Seeing these trends, many people began to ask whether or not they should move to the cloud. That question has changed: It’s not whether they should move, but how.”

Because the velocity of innovation has never been greater, the scale that companies can achieve in a short period of time is unprecedented. A product like Angry Birds can reach 50 million users in 35 days. And as Hölzle points out, it’s no coincidence that Angry Birds is built entirely in the public cloud.

The power of first-class infrastructure

"With the cloud, the power to build new products and features to delight your customers and win future customers can be distributed through your entire business. The central IT organization is not a blocker of progress, but the ultimate enabler," says Hölzle. Let’s look at Snapchat, a Google customer, which has millions of users. Just two years after launching, Snapchat’s users send out 700 million photos and videos every day. Before the era of cloud computing, supporting that level of growth with a developer and operations team of just a few people would have been impossible. A company trying to manage its own infrastructure at that scale would have been overwhelmed with resource-sapping IT demands. Not so with Google Cloud Platform, which allows their app to scale with minimal effort from their team.

Another example is Workiva, which handles financial reports for more than 60 percent of the Fortune 500. From the beginning, the company was built on Google Cloud Platform, with no IT capital expenditures. Confident in the cloud, the company didn’t hire system administrators and an operations team, but instead built a new software tool to tackle that complex data management of financial reporting. No matter what level of surges and spikes in server traffic (and government deadlines periodically provoke such spikes), the system scales on demand. The platform resolved Workiva’s complex data-editing and merging problems so well that it saved them 3-5 full-time positions in system administration and operations.

What about security?

Google recently published the updated ISO 27001 certificate and SOC 2 and SOC 3 Type II audit report, which are the most widely recognized and accepted independent security compliance reports.
Google has pioneered many of the premier technologies and systems that underlie distributed computing today.

When developers build on the Cloud Platform, they take advantage of new advances in computer science that will make their development easier and cost-efficient, and make their applications perform better. You don’t need to choose between building something that is going to be able to scale to support millions of users or building something quickly. You can do both.

And as Hölzle points out, these products and services are implemented at some of the greenest data centers in the world.

Getting the most cloud bang for your buck

In early 2014 Google introduced a new pricing model, with significant savings for computing, storage and analytics. There were discounts for on-demand resources and sustained use, and all charged in per-minute increments, so you could avoid rounded-up bills that didn’t reflect actual use.

As Hölzle declared at Atmosphere Live, “We’ve seen reduced hardware costs and increased efficiency of our service delivery, and we want to return those savings to you. As of now, we are cutting prices of Google Compute Engine by 10 percent across the board. We want to pass our increased efficiency and lowered hardware costs right back to our customers.”

This isn’t a bland, situational, one-time price cut; this is supportive of Google’s overarching — and ongoing — philosophy of returning value to its customers. And actively seeking out that value.
Chico’s FAS, a women’s clothing retailer, has more than 1,500 stores in North America. In 2013, it posted over $2.5 billion in sales. We spoke to CIO Eric Singleton, who outlined several ways the company has already transformed customer service and streamlined communication — after using Google tools for just one year.

“The best way to explain the impact of Google is discussing the things you see and the things you don’t,” says Singleton. “We’ve had huge changes in both areas.” For example, customers don’t see that Chico’s teams moved away from time-consuming email processes in favor of Google Hangouts. They have no idea that the company saved over $2 million in infrastructure costs by using G Suite and Hangouts, instead of building an expensive satellite support center to connect the Hong Kong and Florida offices.

The Hong Kong Hangouts experiment, led by industry veteran Alan Mariotti, VP for Chico’s Technology, changed everything for Chico’s. It ignited a series of parallel implementations that the company deployed in record time, shifting the culture in the process.

Today, Chico’s customers see a more personalized, responsive experience every time they shop. As a result of what Chico’s calls its Digital Retail Theatre™ program, a woman traveling on a business trip can select outfits online, put them in her shopping cart and find them waiting for her at the nearest store, along with a few spot-on accessories. When she arrives at the store,

“With traditional enterprise environments, information is siloed, leaving a business to operate as a sum of many independent parts.

We’re moving away from this toward a more progressive hybrid cloud model, with Google at the foundation. In this new environment, positive feedback loops accelerate, and we can bring together multiple solutions and data sources — all built in the cloud — and look at our business holistically.”

— Eric Singleton
CIO, Chico’s
she’s greeted by intelligent digital signs with localized content, such as the weather, neighborhood events and time of day. These signs can be produced in hours instead of days, resulting in both great customer service and time cost savings for Chico’s.

Chico’s DISCO platform as a service serves as the company’s digital foundation, and it’s written entirely in Go, Google’s programming language. Chico’s integrated G Suite throughout, while Chromeboxes and Google Drive help them deploy the images across all of those digital screens.

“We create a phenomenal number of graphics ..." says Singleton, “terabytes of high-resolution files every year. Our employees have moved them all to Google Drive. As mundane as this may seem, when you’re moving that amount of information around the world, online storage is a huge asset.”

Google BigQuery will allow the company to run predictive models on a decade’s worth of stored customer data, to understand how customers are likely to behave in stores, on the website and when using mobile apps. “This is important,” says Singleton, “because we have four different brands, each with its own focus, sensibility and loyal following. We have to be constantly thinking about what they’ll want next from the brands they love.”

Hear more about the innovative thinking that is transforming retail and redefining customer service. Watch the Atmosphere Live interview with Chico’s CIO, Eric Singleton, and see how your business can use Google Cloud Platform and Google Drive.
File sharing through sync-and-share platforms is a huge business today, with more than a billion people uploading and sharing files of all kinds. According to Gigaom Research analysts, circumstances vary — from individuals uploading personal documents for remote access to “enormous corporate document-management solutions serving thousands of workers involved in critical enterprise processes.”

You may know Google Drive as a consumer technology that allows you to store Google Docs, Sheets and Slides to share with others or to access from other devices. But Drive is much more than that — it’s a secure place where distributed work teams can collaborate.

“The size of the market ... is a testament to how critical this functionality is in a world where users have multiple devices and where sharing files has become the central aspect of a new computing paradigm.” — Gigaom Research

GET THE FULL RESEARCH HERE »
Today, companies from around the world — including Crate & Barrel, Seagate, Tory Burch, HP and Jaguar Land Rover — rely on Drive to help them innovate, share knowledge and exploit the competitive edge that comes with speed of execution.

Business customers need flexibility and security, so Google continues to make upgrades that reflect those needs. With today’s Google Drive, you can preview over 40 different file types on your mobile device without any additional software. As a result, adoption of Google Drive is exploding — up 50 million users between June and October 2014, to a total of 240 million users.

At just $10 per user, per month, Google Drive takes things even further — including the ability to share huge files, up to five terabytes. How big is 5TB? That’s the amount of data the U.S. Library of Congress stores every month.

Google has invested significantly in security features that make Google Drive a platform that even the most privacy-sensitive companies can feel good about:

- **Fine-grained sharing controls** let administrators customize Drive and determine who can see files, and who can edit or sync them.
- **A new audit view reveals file activity**: anyone moving, deleting or sharing files within or outside the company.
- **Automatic file encryption** occurs the moment you press the “upload” button and persists in transit from your device to Google servers, between Google data centers and also while data is at rest on Google servers.
- **Built-in archiving and e-discovery** with Google Vault allows you to retain, archive, search and export email, chats and any type of file stored in Drive so you can meet compliance requirements.
- **Enterprise-grade security** and compliance certifications include a SSAE 16 / ISAE 3402 Type II, SOC 2-audit, ISO 27001 certification, adherence to the Safe Harbor Privacy Principles, and support of industry-specific requirements like HIPAA.

Flexible, secure and enterprise-ready file sharing is here. Learn more about [Google Drive](https://drive.google.com) or subscribe to our [YouTube Channel](https://www.youtube.com) to discover new tricks and tips on how to use G Suite and Drive.

“**As the threats in the external environment change, Google is at the forefront of preventing, responding and anticipating.**”

— Todd Pierce  
CIO, Genentech
Securing corporate data in the cloud

Eran Feigenbaum is Director of Security for G Suite and shares how Google keeps corporate data secure

As the threats in the external environment change, Google is at the forefront of preventing, responding and anticipating. That's one of the great things about partnering with Google: you have some of the best minds in the world working on those problems.”

— Todd Pierce
CIO, Genentech

You can work safer in the cloud.

Our world has changed. We used to have better technology at work than at home, but today, most of us have better tools at home than we do at work. Today’s CIOs face this tension between their users’ desire for freedom and their organizations’ need for more security. But the cloud offers a solution. A good cloud provider lets you access your data from anywhere on any device in a secure manner.

Traditional environments cannot cope with the new speed, and this will expose you to new threats. In the cloud, we get security feedback instantly and can refine our protection in real time. Updates and security fixes are installed automatically, eliminating patches, scheduled downtime and server configuration.

Ultimately, the cloud is about providing you with technology so you don’t have to build it yourself, and providing you expertise so you don’t have to develop it yourself. And that’s how we approach security. At Google, more than 450 security engineers, including some of the world’s foremost experts, work around the clock to keep your data safe. Providing security has always been a balancing act between what is needed and what you can afford. We let you add more security in a way you can afford.
Google’s cloud secures your data

Google has control over the entire technology stack, starting with the data encrypted on the hard drive in our datacenter all the way to the operating system of the device you hold in your palm. We even have our own trans-oceanic fiber network connecting data centers around the world, which improves security and reliability.

Not only is our security built into how we store and communicate the data, but really, security is at every level of our system. We have built a series of defenses in the depth of our systems to create a maze for the intruder — advanced safeguards like 2-step verification, encryption and specialized servers to protect your data at every level.

As a business customer, you only pay for the services used, but you benefit from Google’s entire security infrastructure and security experience. Because of our size and position we are faced with the most unique threats, from sharks attacking our undersea cables to governments trying to access our systems. We learn every day from these threats, and have built a unique expertise. We even engage the security research community to test our systems with a vulnerability reward program and an open source patch reward program.

By going Google, we gained reliability and security compared to our prior configuration, which required extensive upkeep, upgrades and patches.”

–Bill Oates
CIO, City of Boston

Advanced safeguards like 2-step verification, encryption and specialized servers to protect your data at every level.
You can count on Google to protect your privacy

G Suite has a different approach to advertising. Google does not collect or use G Suite data for advertising purposes, and there are no ads in G Suite. We are not scanning any of your Gmail, Docs, Slides or Spreadsheets — or any data processes — on the Geo or Google Cloud platform for advertising.

Beyond protecting your data with the best technology, we do everything that we can to protect your data from third-party requests. If for some reason a third-party wants to access your data, our policy is to notify you so you can determine how to respond. We scrutinize all requests to make sure they are valid, and offer no access to customer data without valid legal process or customer consent. When the law prevented us from being completely transparent, we challenged it. We recently won a case against FISA (Foreign Intelligence Surveillance Court), which was unlawfully preventing us and other technology providers from sharing the number of requests we were receiving for access to customer data.

In any case, because it’s your data, you should know what happens with it. We have been the first ones to publish the list of third-party requests we receive to inform the public about all requests by government agencies for user data.

We’re fighting for users from both sides. First, our systems are already among the most secure in the world — and our security experts are continually creating ways to make them even stronger. Second, we are pushing back against any unfair government requests for user data, and we are very active in helping reform these government surveillance processes.

Learn more about the Google approach.
As a consumer product marketing company, ScottsMiracle-Gro relies on trade promotion spots to get customer attention. Sales associates use these promotions in their negotiations with large retailers, such as Home Depot or Walmart, to get them to feature key products on prominent shelf space.

Until recently, communication between the ScottsMiracle-Gro marketing and sales departments was cumbersome. In an effort to better coordinate the company’s 150 sales, marketing and finance associates, leaders realized that transforming business practices was of the utmost importance.

For example, account managers often did not have commercials available to show store retailers, and there was a risk that the on-air schedule could change without giving the sales manager time to make adjustments in stores. As Scott Hendrick, SVP and CIO at ScottsMiracle-Gro, tells it, Scotts first built a Trade Promotion Management (TPM) solution using Google App Engine. About a year later, IT partnered with sales leadership to build a CRM app for the sales force. After using the app for about 5-6 months, sales asked IT if they could embed the TPM solution into CRM app; it took just 2 weeks to make the requested update.

In an effort to better coordinate the company’s 150 sales, marketing and finance associates, leaders realized that transforming business practices was of the utmost importance.
Because the low-cost TPM solution was built in the cloud, sales teams can now pull up every trade promotion in their region. Radio, TV, print, audio, video — it’s all right there: all the content, all the schedules. If it’s an early spring in Minneapolis, and marketing adjusts the promotions, that account manager is updated instantly.

Before TPM, Hendrick’s team evaluated a few multi-million dollar standalone packages. “Frankly, they were way over-featured for us,” he says. “So we developed just the parts we really needed with Google tools, and implemented them at a fraction of the cost.”

ScottsMiracle-Gro has also seen organic adoption and satisfaction when rolling out G Suite across the company. Most people were already familiar with Gmail, Docs and Drive, so collaboration happened naturally with teams of associates working in the same document instead of saving different versions on the server.

“Google tools sell themselves within the organization”, says Hendrick. At last count, the company had more than half a million documents in Google Drive. “As human beings, we watch each other. In a technology context, we start asking, ‘Hey, how’d you do that?’ And it leads to success breeding success, which sets the stage for continuous improvement.”

To hear Hendrick tell it, transforming business has never been easier. “We continue to build additional solutions using Google App Engine and G Suite to connect processes across various parts of the organization, helping break down the silos that traditionally lead to inefficiencies. For ScottsMiracle-Gro, those synergies mean low cost solutions that are relatively quick to implement, and that’s having a company-wide effect.”

View the Atmosphere Live interview with ScottsMiracle-Gro SVP and CIO Scott Hendrick, and see how you can put Google Cloud Platform and Google Drive to work for your business.

“We continue to build additional solutions using Google App Engine and G Suite to connect processes across various parts of the organization...”

— Scott Hendrick
SVP & CIO, ScottsMiracle-Gro
Collaborating When It Counts: How Colorado Weathered the Storm

There’s sound reasoning behind the old adage, “Hope for the best. Prepare for the worst.” We can’t always prevent crises, and we certainly can’t control the weather. But through collaboration, planning for the unexpected and having tools in place to move quickly when emergencies happen, we can minimize costs and casualties.

When massive flooding struck Colorado last fall, water covered the entire front range, causing more than $3.3 billion in property damage and $556 million in economic loss. More than 18,000 people were evacuated and more than 16,000 homes were damaged, with at least 1,850 of them completely destroyed. According to NBC’s Denver affiliate 9NEWS¹, the disaster affected 17 counties. Those residents — and their concerned families — needed reliable information fast.

So Brandon Williams, director of IT for the State of Colorado, and his team were handed a tall order: build a comprehensive, easily updatable disaster-assistance website capable of helping citizens find the safest route out of flooded areas, locate shelter and connect with loved ones. The kicker: It needed to launch immediately.

To build Colorado United, Williams and his team got a little help from Google.

What’s extraordinary is that we did this in less than 24 hours, at little cost and — for the first time — integrated real-time feeds of emergency-management information from local, state and federal agencies...

The bottom line is that we did what all of us want to do: be agile and responsive. And we did it all with Google tools.”

— Brandon Williams
IT Director, State of Colorado

¹9NEWS, NBC affiliate in Denver, CO.
During natural disasters or other emergency situations, organizations need collaboration tools that let them prepare and respond quickly, even when IT infrastructure requirements can be difficult to predict. This is when the cloud becomes critical to an organization.

Cloud-based tools can provide government agencies and businesses with a reliable platform to create, share and publish their own information at scale — all within the security of Google’s infrastructure. The result: Organizations can generate comprehensive maps, apps and websites that sustain IT outages and inform stakeholders on demand.

That’s why Williams’ team used Google Sites to build the infrastructure for Colorado United and Google Maps to host and serve the location data.

Collaborating on the fly

The State of Colorado didn’t have time to built the robust, informative, real-time website its citizens needed from scratch. But since the organization had already built and paid for the code to create another Google cloud-powered site — Tobacco Free Colorado — Williams’ team was able to launch Colorado United using the same template, at no additional cost.

“Instead of the traditional model of outsourcing website development, where the partner owns the site and you’re locked into maintenance fees, we now own the code, can develop our content and have a set of tools that are easy to use, especially for non-technical people.

As a result, our agencies are starting to embrace the idea that they can build on each other’s efforts and get the systems they want. Today, we have more than 405 [State of Colorado] sites — internal and external — that have been built using Google Sites.”

— Brandon Williams
IT Director, State of Colorado
Mobilizing the troops

Colorado United quickly became the go-to source not only for citizens dealing with the flood, but also for the media and first responders who needed to coordinate their efforts.

To collaborate during the crisis, state officials also used Google Hangouts to share screens, edit documents and get things done quickly. The organization still uses Hangouts to host question-and-answer sessions between citizens and public health experts, and to deliver technical training to people at their desks, rather than forcing them to drive for hours to a training site.

Williams says the success of Colorado United has changed his organization’s culture to one that demands new technology instead of resisting it.

“Our work with Google has given us a litmus test that we apply to all new technologies ... We want to know: Can it help us work together more efficiently? ... This is what gets us excited, because in government, we’re at our most productive when we have more time to serve people like you. Our work with Google has made us more productive and cost-efficient, and is transforming our culture into one where we’re really getting the best out of technology for the people we serve.” — Brandon Williams

To learn more, watch our interview with Williams at Google’s Atmosphere Live event. Plus, discover how to Prepare, Respond and Recover with Google Maps.