IEEE CLOUD COMPUTING

VOLUME 5, NUMBER 4 JULY/AUGUST 2018

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2018

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IEEE Cloud Computing: (ISSN 2325-6095) is published bimonthly by the IEEE Computer Society. IEEE headquarters: Three Park Ave., 17th Floor, New York, NY 10016-5997. IEEE Computer Society Publications Office: 10662 Los Vaqueros Cir., Los Alamitos, CA 90720; +1 714 821 8380; fax +1 714 821 4010. IEEE Computer Society headquarters: 2001 L St., Ste. 700, Washington, DC 20036. Subscribe: Go to www.computer.org/subscribe for more information on subscribing.

Revenue Growth is the Primary Benefit of the Cloud

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Joe Weinman

Cloud computing is too often seen as a tactical way to reduce costs, when its most important benefit is as a strategic way to grow revenues. Such revenue growth can come about in a variety of ways, such as through faster innovation of new products, processes, and customer interactions; identifying more customers and closing more purchases; and improving customer relationships through more targeted offers and better service and experiences. Companies that clearly understand the relative magnitude of cost savings and revenue growth and orient themselves toward the latter will better exploit the cloud and related technologies such as big data, artificial intelligence (AI), the Internet of Things, and blockchain, and thus strengthen their competitive advantage and customer value.

A typical, but simplistic view says that the economies of scale that large cloud service providers achieve drive down the unit cost of compute.[1] This logic does have some truth to it, but is flawed on several levels. First, cloud providers enjoy cost advantages not only through economies of scale, but also through better utilization through aggregation of statistically uncorrelated workloads, as well as selling spare cycles through mechanisms such as "spot instances." They also can enjoy economies through greenfield siting, where power and land are cheap, and tax benefits may be conferred by local authorities. However, large diversified enterprises with sufficient technical competence, operations capabilities, purchasing power, etc., can enjoy similar cost advantages. Moreover, enterprises doing it themselves don't have to pay the additional cost structure penalty comprising a cloud service provider's profit margin and general, sales, and administrative expenses.[2] As a result, real-world experience is mixed, with some saving money by moving to the cloud and others saving money by moving out of public clouds.[3] Many others do best with a hybrid strategy that can offer an optimal balance of lower costs through fixed resources for baseline demand and elastic pay-per-use resources for variable demand beyond the baseline.[4] Still others use a multicloud approach, either to cobble together digital support for an end-to-end workflow,[5] for reliability, or to arbitrage price differentials among cloud service pro-

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viders.[6] Many use a combination of all of the above, leading to a mix of private and public, multiple public clouds, and centralized facilities and dispersed ones—the hybrid multicloud fog.[7]

Moreover, even if the *cost savings* are dramatic, their impact barely moves the needle on *overall* corporate financials. Since IT costs typically average roughly 4% of revenue, a compelling 25% cost reduction in IT only represents a 1% impact on the company. This is good for a CFO, CIO, or procurement executive's performance review, but not enough to guarantee business success in the world of global hyper-competition and disruption that most companies find themselves in.

No, the greatest impact of the cloud—broadly defined not just as Infrastructure-as-a-Service (IaaS) but new architectures such as the hybrid multi-cloud fog and layers through the application layer—is in growing revenues, not in cutting costs. Several mechanisms are at work, because the cloud helps to:

- **accelerate innovation**, by providing easy-to-use enabling tools and reducing friction;
- **find and reach more customers**, in more places, more precisely, with better experiences and more compelling content; and
- **enhance customer relationships**, and thus, stickiness and loyalty.

These form a virtuous cycle, enabled by the cloud. Faster, cheaper, and better innovation in products, services, and processes thanks to the cloud leads to differentiated offers in the marketplace. Together with precision marketing and global reach, this enables companies to find more customers, close sales, and deliver products and services to those customers, globally. Relationships with those customers move from mere anonymous transactions to a higher degree of intimacy, and advanced big data algorithms such as recommendation engines enable "collective intimacy."

The cloud is also associated with other benefits, such as accelerated time to market and time to volume, and business agility and elasticity. However, these also directly correlate to revenue growth. Reducing time to market implies generating first-mover advantage, which in today's world can imply signing up sticky customers and ecosystem partners before someone else does. It also can imply gaining a larger share of the profit pool before it dissipates later in the product lifecycle across a sea of competitors. Resource elasticity helps revenue-generating services scale, ensuring revenue is maximized to the extent the market will allow. Finally, the concept of "business agility" can be a bit amorphous, but it generally refers to the ability to rapidly respond to shifts in market dynamics, customer needs, or competitor moves. While a portion of these benefits surely accrues to cost reduction, a majority generally is realized as enhanced revenue.

All of these benefits together can mean more compelling products and customers, more frequent purchases, and/or larger purchase sizes, all leading to higher revenues: the true impact of the cloud.

ACCELERATE INNOVATION

The cloud accelerates innovation in many different ways. By eschewing ownership in favor of on-demand access, it eliminates much of the friction and risk involved in experimentation, a necessary component of innovation.

For example, in the early 1950s, when GE wanted to experiment with state-of-the-art technology—a "stored-program electronic computer"—it reportedly needed to plunk down millions of dollars for a UNIVAC. It also needed what was, in effect, a ruse, to spend that money—using a mundane justification of automating payroll, manufacturing operations, ordering and billing, and accounting. As Paul Ceruzzi remarks, "GE needed to assure its stockholders that it was not embarking on a wild scheme of purchasing exotic, fragile, and expensive equipment,"[8] even as it had the foresight to envision that this technology could be revolutionary. One can only imagine how much time it must have taken to formulate a business case, socialize the approach with various leadership communities, none who would get credit but all who would shoulder the blame if anything went wrong, gain the necessary approvals, place the order, build or repurpose a site, accept the delivery of the equipment, etc.

Today, early adopters no longer need to take crazy risks to invest heavily and "bet the farm" on promising but unproven new technologies. The fundamental profile of the technology adoption lifecycle is being restructured through on-demand cloud access models with pay-per-use pricing rather than fixed cost or up-front capital investment; microservices, cloud functions, and APIs; "try-before-you-buy" free tiers, freemium, or introductory trial periods; elastic capacity; and so forth, which all enable customers to experiment with bleeding-edge technologies for free or at little cost or risk.

Free trials have been a means of incenting customer adoption for decades, if not centuries. It is a particularly appropriate strategy for cloud-based software, because the marginal cost of a customer trial is essentially zero, and the product does not wear out with a trial, unlike, say, a car used for test drives. In many cases, services are offered entirely free to customers/users, either as a loss-leader in a broader strategy, or based on 3rd party or multi-sided monetization.

To pick some examples to illustrate the variety of approaches, Microsoft offers free 30-day trials of Office 365 that are intended to convert to a monthly subscription. Google offers some services, such as Gmail and Google Docs, for free, with a paid version with enhanced features for business (with a free 14-day trial); others, such as Google search, are advertiser-supported. AWS offers free tiers for various offers, such as AWS Lambda functions (i.e., serverless computing). With Lambda, for example, the first million transactions each month are free, although there are some surprisingly complex economics behind this.[9]

What is particularly of interest in today's cloud offers is that it's not only mainstream or commodity functions that have free trials of freemium models, or products that are still in beta, but highly advanced technologies. For example, IBM offers free trials for dozens of products, such as SPSS statistical analysis and MaaS360 mobile device security. But it also offers free trials for its most advanced capabilities.

Customers can experiment with the IBM Watson API or IBM Q quantum computing environment for free, and then expand into paid use. This approach not only has benefits for customers, it also means that service providers can rapidly learn from early adopters and identify valid industry use cases with which to tune and iterate their offers. For example, Staples was able to rapidly prototype a new version of its iconic "Easy" button that tied to an IBM Watson chatbot.

Moreover, cloud users have a range of options to accelerate the testing and deployment of new products, services, and processes. Rather than relying on standard packages, which don't provide competitive advantage; or having to wait interminably for in-house development efforts to build complex features from scratch, CIOs and their teams can rely on a mix of standard tools and environments used as is, which might be ERP functions or collaboration tools such as email or shared documents; open source software *and* hardware and networks; custom mixes of multicloud SaaS tools that enable workflows unique to the industry or offering strategic advantage to the customer,[10] or environments that are built in-house but leverage APIs or serverless computing/cloud functions to rapidly assemble Lego blocks of software to build unique, proprietary functionality.

The digital capabilities and implementations that result from this approach offers the best of all worlds: alignment with business strategy and processes; low risk; fast time to market; low up-front and operating costs; high scalability and elasticity. This software can be used to power differentiating business processes or digitalize products and services.

The cloud also democratizes innovation. Rather than innovation being restricted to deep-pocketed corporate labs, anyone, anywhere, at any age can be an innovator. A great example is Tanmay Bakshi, who released his first iPhone app at age nine (thanks to app dev SDKs and Apple's cloud-based App Store) and as an eleven-year-old heard about Watson. Within a week, he had built a Watson-based app.[11] Indeed, virtually anyone can gain access from the comfort of their living room, often at no charge, to the most advanced technologies in the world. They can then rapidly move from awareness, to experimentation, to trials and proofs of concepts, to production readiness and global scale.

Many business model innovations, such as pay-as-you-drive insurance, are ultimately based on a cloud-enabled architecture entailing real-time data collection and processing. In this approach, an automobile insurance company underwrites policies based not just on demographic information

such as customer age and zip code, or driving history and recent violations, but can price premiums in real time and by the mile based on live data streams such as roadway congestion, weather conditions, vehicle speed and acceleration, lane changes, and so forth, aggregated and processed in the cloud.

The cloud can accelerate innovation in many other ways.[12] This includes cloud-mediated idea markets, innovation networks, contests and challenges such as GE FlightQuest, the Netflix prize and Fold.it, hackathons, and ultimately, machine innovation as exemplified by Google DeepMind AlphaGo's move 37 in Game 2 against one of the world's top Go players, Lee Sedol[13]; IBM Chef Watson, which creates new recipes; Melvin, the algorithm that designs quantum physics experiments[14]; and the final frontier, machine creativity in formulating scientific theories through automated hypothesis generation.[15]

FIND AND REACH MORE CUSTOMERS

To find likely prospects has always been a challenge. As John Wanamaker famously said a century ago, "Half the money I spend on advertising is wasted; the trouble is I don't know which half." But today, cloud Software-as-a-Service (SaaS) tools can tie in to other cloud elements such as social media and email to optimize targeting. In other words, one cloud provides the AI processing; other clouds provide the raw data; still others provide the means to message customers. For example, a Harley-Davidson dealership in New York was able to increase sales leads by almost 3000%, using "Albert," an AI-based SaaS package that supports autonomous media buying across multiple marketing channels, testing and optimization of those channels and creative content, and various other activities such as identifying "lookalikes," i.e., prospects that match existing customer segments.[16]

Reaching more customers has always meant utilizing new channels for marketing and distribution. At one time the new channel was the mail-order catalog. Then TV, with sponsored shows ("soap" operas) and advertising. Then it was tele-sales, and then ecommerce.

Today, basic ecommerce has evolved, and, marketing and distribution includes owned, earned, and sponsored media. It includes paid search, banner and pop-up ads. But it also includes entirely new mechanisms. Alibaba created a virtual reality Macy's store for Singles Day, and shipped Google-cardboard-like smartphone holders turning every phone into VR goggles. At the other extreme, Amazon Dash buttons make every washing machine, kitchen cabinet, or refrigerator a storefront. Smart speakers such as the Amazon Echo family can be used to order anything that a browser pointed to Amazon.com can. All of these are enabled by global wireless and wireline infrastructure linking these points of presence to the cloud.

In the physical world, scaling distribution means building more branches and retail stores and the supply chain feeding them including manufacturing or service operations infrastructure. In the virtual world, as long as the software architecture is designed to scale, the cloud—both in terms of elastic web and app servers but also content delivery networks—provides the essentially limitless resource infrastructure that enables companies to grow without needing to site and build out their own data centers. Moreover, the latest cloud architectures utilize a global fabric of hyperscale datacenters distributed across global regions, tied through global networks and interconnection facilities to each other and a highly dispersed fog/edge.[17] This reduces latency as well as backhaul traffic and thus bandwidth requirements.[18]

ENHANCE CUSTOMER RELATIONSHIPS

Customer relationships are also enhanced by cloud-centered approaches. For example, consumer packaged goods manufacturers used to manufacture products and sell them through intermediaries such as retailers and VARs. They often had no idea who the customer was or how they were using the product. Now, products are increasingly smart, digital, and connected. Smart home devices like Wi-Fi lightbulbs and door locks are one example. Modern vehicles such as Teslas are another, with over-the-air upgrades and data collection for global optimization. Netflix is another example. Netflix collects trillions of data points from each viewer, such as search intent,

navigation behavior on the "home page" displayed in browsers, phones, and smart TVs; viewing behavior such as watching, pausing, and rewinding; contexts such as mobile device or TV, time of day, and location; social graphs; and convolves this with external data such as director, filming location, actors, and subjective evaluations of content metrics, such as whether the content is romantic or funny. All this data is aggregated and maintained in the cloud, and used to generate recommendations intended to increase customer satisfaction and reduce churn, thereby increasing customer lifetime value. This also enhances referral marketing, whereby happy Netflix customers act as a virtual salesforce helping to convince prospects to subscribe.[19–21]

TOP LINE TRUMPS BOTTOM LINE

Cost savings can help the cloud provide value to IT organizations, but the true value of the cloud is in growing revenues for the corporation.

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