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The Next Evolutionary Step for Cloud Computing

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What do The Flintstones, Barack Obama and cloud computing all have in common? They were all born in the swinging '60s! You may think cloud computing is a relatively new concept, but its [origins](#) lie with ARPANET, the foundation for the modern network. Cloud computing has evolved over time, and today, the likes of Microsoft, Google and Amazon have come to dominate cloud computing. They took the cloud to new heights (excuse the cliché).

Today, the cloud has touched almost every facet of life and has completely transformed how data is managed, distributed and used. That is why data is the new oil. Powered by the Silicon Valley behemoths, the cloud is powering IT across the board — so much so that Gartner [predicts](#) cloud-fueled IT service spending in 2019 could reach a whopping \$3.7 trillion. Now, cloud computing's evolutionary story has a new chapter.

The new kid on the block

As mobile devices have become more prevalent, data across the cloud has been increasingly traversing over wireless networks. And there is a new kid in town — 5G, which promises to

give cloud computing a new lease on life for mobile operators globally. 5G's virtualized architecture has been designed for the cloud to be leveraged to maximum effect.

In preparation for this, telecom operators are ramping up spending on infrastructure. According to analyst outfit Analysys Mason, [CAPEX for mobile operators](#) could exceed \$180 billion by 2025 — and the 5G cloud will play a major part in that investment decision. 5G requires networks to be software-defined and hyper-converged from the radio to the core network and all the way up to the cloud.

The \$180 billion price tag is steep, and operators must break even quickly to monetize 5G. But operators recognize that consumers may reject any attempt made to recover those costs through rate hikes. So, what can operators do? A growing number of forward-looking telcos are looking at a bevy of new use cases that heavily depend on the cloud to recoup investment costs. Some of these use cases include:

- **Driverless automobiles:** Depending on the survey du jour, consumers either [eagerly anticipate](#) or are [worried sick](#) over autonomous vehicles (AVs). But the reality is that, as 5G networks mature, roadways will become more clogged, and environmental concerns will continue building. Those two factors alone will likely drive consumers — and the industry — to overcome initial emotional reactions to AVs, ushering in opportunity for mobile operators to recoup their 5G network investments.
- **Healthcare:** The impact of 5G on consumer healthcare can't be overstated. It has a massive potential to revolutionize healthcare by driving costs down, improving quality of care and ensuring that healthcare truly is available anywhere there is a wireless signal. The financial implications for consumers are mind-boggling. Perhaps even more exciting, though, is the thought that healthcare really will be available to anyone, anywhere simply by accessing a wireless device. Operators will play a vital role in this, and that should be recognized and recompensed.
- **Virtual reality (VR) and augmented reality (AR):** Currently, consumers seem to feel lukewarm about these technologies; however, that is likely to change as devices come down in price. Retailers are counting on both to revitalize consumer spending, and 5G networks should help deliver speed and latency requirements that will boost consumer spending to support VR/AR spending for gaming and similar applications.
- **Smart homes:** In the U.S. alone, consumers are expected to spend more than [\\$400 billion in 2019](#) on smart devices for the home — technology designed to make homes safer, more interactive and more intuitive. But these kitchen appliances, climate control systems, health monitors, speakers, cameras and millions of other devices continue to operate on networks and hubs that pale in comparison to what 5G networks will deliver. This creates another major opportunity for operators to partner with consumers for smart home connectivity services.

Life or death on the cloud

As these use cases demonstrate, the possibilities with the cloud are endless. But the cloud demands a new approach from operators. Prior to 5G, carriers built networks that guaranteed high reliability. That is acceptable to minimize annoyances like video buffering and the occasional dropped call. Now, however, it is life or death. When it comes to road safety or a remote surgical operation, being reliable is no longer enough.

For the 5G cloud, operators need to virtualize the underlying infrastructure of the network. This can be achieved with software technologies that step in to provide the necessary high availability. How can this be achieved? One approach is to manage stateless servers that are combined with highly distributed, highly available cloud data. This concept is called cloud data management (CDM).

There are several implementations of this concept. Some vendors and operators use terms such as “common data layer,” “shared data layer” or “cloud data layer,” but the basic principle is the same. This is the evolution of what telecom operators used to call "subscriber data management." It introduces the idea of a single, separate data layer for 5G networks to securely and efficiently store structured and unstructured data, instead of each vendor’s application having its own proprietary data store. In doing so, this does away with vendor lock-in.

5G has kick-started the next evolutionary step for the cloud. This time, it is the mobile operators who can shape the cloud and harness its full potential. Operators now have the opportunity to innovate and deliver services and convenience and, ultimately, strengthen their bottom line. And that’s all thanks to a technology born in the '60s.

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