



# Technology Domain Background

## Part 2 of 8 – Application Hosting and Cloud Strategy

This is part 2 of an introductory series of documents intended to assist your organisation in defining your Application Hosting and Cloud Strategy. Your organisation may already have such a strategy, in which case these documents will hopefully confirm you are on the right track or they may identify challenges your organisation faces.

## Technology Domain Background

General market trends, emerging technologies together with the broad benefits and challenges associated with cloud deployments are presented below. No specific conclusions are drawn for an Application Hosting and Cloud Strategy, the document purely provides the broader context in which such a strategy is set.

### Market Trends

The IT industry is seeing a significant and growing spending shift by organisations from traditional on-premises deployments towards cloud infrastructure and services. “Cloud first” is, or will be, the de facto for future application deployments, with a failure by organisations to embrace the cloud leaving them at a disadvantage. Vendor’s best offerings will be designed for the Cloud so organisations looking for “the best” in IT will need to embrace cloud solutions. The following statistics from analysts and vendors back up these trends and point to acceleration in the adoption of cloud technologies:

- Gartner expects that by 2019 over 30% of technology providers’ new software will shift from Cloud-first to Cloud-only;
- Vendors Cloud infrastructure and services businesses are growing rapidly, e.g. HPE’s is growing in excess of 20% p.a.;
- In a recent study by HPE, 72% of respondents indicated that cloud would be their primary destination over the next two years;
- IDC expects that by 2020 at least 50% of net-new IT spending will be cloud-based, shrinking non-cloud enterprise applications by 20%;
- IDC expects that by 2018 more than 50% of all organisations expect the majority of their IT capabilities will be delivered through some form of cloud service, and that 77% expect to allocate >10% of their IT budget to Public Cloud;
- Gartner estimates that the Public Cloud services market will grow to \$385 billion by 2020;
- Gartner expects that SaaS usage will increase 70% between 2015 and 2018;
- 15% of firms’ new applications are built in a cloud-native environment, scheduling to more than double to 32% within the next 3 years<sup>1</sup>. The key driver behind this trend is the desire to improve agility, scalability, and velocity, thereby reducing time to market;
- Adopters of cloud-native environments are seeing tangible benefits, with 84% of respondents citing that moving to cloud-native has increased revenue and reduced operating costs;
- Gartner predicts that by 2018, 50% of the applications hosted in the Public Cloud will be considered mission-critical by the organizations that use them;
- Gartner predicts that by 2020, anything other than a cloud-only strategy for new IT initiatives will require justification at more than 30% of large-enterprise organizations Gartner predicts that by 2021, more than half of global enterprises already using cloud today will adopt an all-in cloud strategy;
- IDC predicts that total spending on IT infrastructure for cloud environments will increase 15.3% in 2017, with the majority in Public Cloud data centres;
- KPMG predicts that PaaS adoption will be the fastest growing sector of cloud platforms, growing from 32% in 2017 to 56% in 2020;

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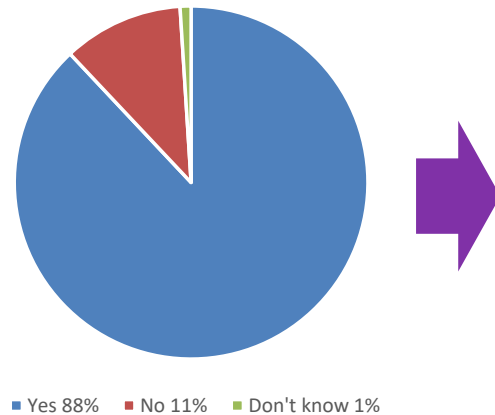
- AWS revenue grew 43% between Q1 2016 and Q1 2017;
- Rightscale's 2017 Public Cloud adoption survey found that Microsoft Azure adoption grew from 26% of respondents to 43%;
- In the BDO Technology Outlook Survey 2017 74% of CFOs said that cloud computing will have the most measurable impact on their business. Internet of Things was second with 56%;
- Forrester expects SaaS revenue will grow at 22% CAGR between 2015 and 2020, reaching \$236B;
- IDC predicts that by 2020 55% of business applications will allow direct API access to most applications, while monolithic applications will decompose into microservices exposed via APIs;
- Gartner estimate that on average organisations save 14% using Public Cloud services;
- Medium and large enterprises will rarely become cloud-only;
- Big hacks and security failures have not occurred, 95% of cloud security failures will be the customer's fault;
- The most common path to cloud application failure is to assume you can simply migrate workloads to the cloud and save money – application strategies must be rethought.

The drive towards cloud adoption is not only being driven by the desire to utilise the benefits of new technology. IDC has identified the following risks, among others, attributable to legacy data centre and IT environments that are helping to accelerate cloud adoption:

- IDC expects that in the next two years, 30% of large and midsize businesses will suffer service failure because of mismatches in power delivery and IT workload profiles caused by hardware obsolescence;
- One of the major risks to organisations is security vulnerabilities caused by aging software, hardware, or both, and the cost of upgrading these using traditional Capex methods.

The following diagram illustrates the reasons why organisations have adopted a Cloud first strategy:

Does your organisation have a Cloud first strategy?



Why does your organisation consider cloud services as the first, and preferred option for IT investments?

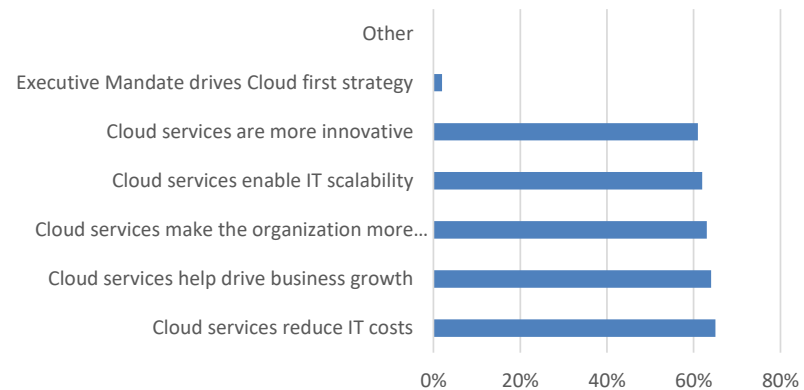


Figure 1 - Reasons for a Cloud first strategy

A further round-up of forecasts conducted by Forbes can be found here:

<https://www.forbes.com/sites/louiscolumnbus/2017/04/29/roundup-of-cloud-computing-forecasts-2017/#2247205431e8>

### Emerging Technologies

To support the above market trends, particularly around the emergence of Cloud native applications and services the following technologies are becoming mainstream:

- **Microservices:** Applications or services are broken down into multiple microservices that provide the functionality required. All the microservices have standard interfaces that allow them to work together correctly but are developed independently of each other. This allows a more modular and agile environment that has automated and regular release and test cycles. This contrasts with traditional monolithic applications that have elongated development, testing and upgrade cycles;
- **Containerisation:** Applications run inside dedicated virtual “containers” housed on a single operating system instance, instead of a virtualised operating system running on a hypervisor. This is meant to simplify environments by removing the need to set up and pay for multiple operating systems to cater for application separation. This technology has focused originally on deployment of modern specifically architected applications (or

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microservices) but more recently this technology is being used to containerise legacy applications to manage portability, scalability & security (e.g. Docker MTA);

- **Serverless:** Serverless technology will create a complete abstraction between an application and the compute resources required to run it. Applications will simply be pointed to a serverless environment where the application will run;
- **Internet of Things (IoT):** More and more devices will become network connected and will generate potentially large amounts of data. Through analytics this data can be used to derive business value that for instance contributes to forecasting, planning and maintenance efficiencies. Future applications will be able to take advantage of this information to adapt consumption and delivery mechanisms according to changing circumstances;
- **Edge computing:** In conjunction with IoT many applications will utilise edge computing capability to mitigate bandwidth and latency issues with remote data centres and Public Cloud based services. Intelligent devices and sensors will either process data themselves or pass it to an aggregation layer that processes it for them, as depicted in the diagram below.

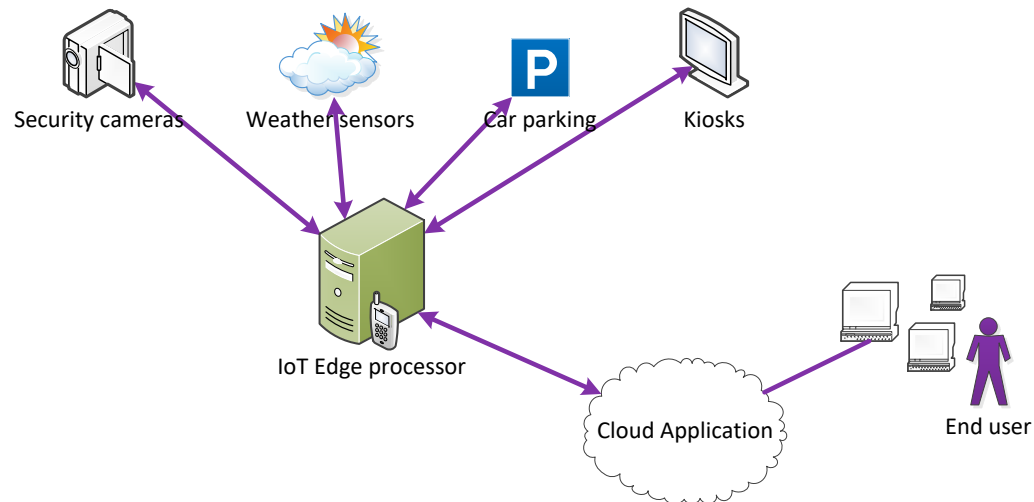


Figure 2 - Edge computing

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