

THE ACCELERATION OF CLOUD

*Demystifying the Choices...
How companies are optimizing their application
and infrastructure alternatives to minimize risk
and drive increased value*

INNOVATION AREAS

Costs, Benefits, & the Risk of Standing Still

Cloud Strategies & Choices

Emergence of Cloud First

Managing Risk Through Hybrid & Multi-Cloud

Barriers to Overcome

TREND 10

*Bringing the Digital
Utility to Life*



TREND 10: THE ACCELERATION OF CLOUD

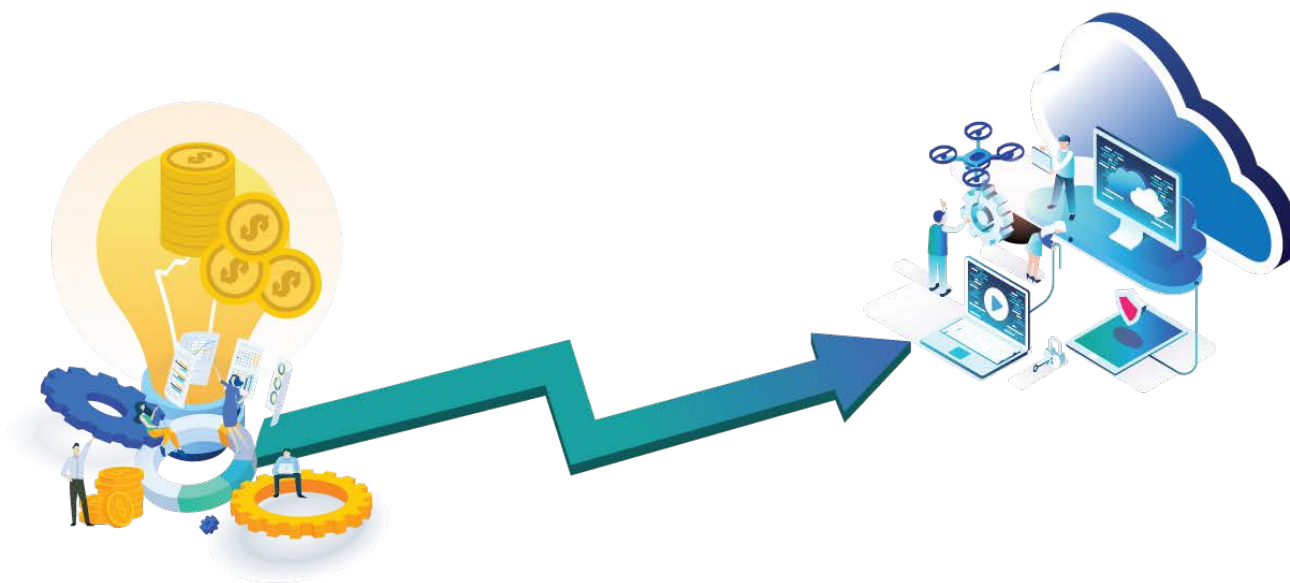
Utilities, like most industries, have experienced enormous growth in the adoption of cloud technology in their business. At the end of 2019, Oracle reported that over 70% of utilities were utilizing cloud software within their business operations, up from 45% just three years prior. The same was true for cloud adoption at a general level across multiple industries. While utilities may have arrived later to the table vis-à-vis other industries in terms of its overall adoption of cloud technologies, it's virtually impossible to find a utility that, at some level, has not introduced cloud technology in at least some part of their business.

Utilities have now moved past the questions of “if” and “when,” and are now contemplating “how far,” “how fast,” and to “what end”? And for these questions, utility strategies vary widely. The challenge today's utilities face are around the proverbial ‘moves on the chess board’ - how the choices they make now impact their future flexibility with regards to how they design and navigate their cloud journeys.

“Over 70% of utilities report they are using the cloud in some way to power their business applications, but most acknowledge their journey is just beginning.”

COSTS, BENEFITS, & THE RISK OF STANDING STILL

Regardless of industry, the aggressiveness and speed of a company's cloud journey boil down to how the organization views its underlying value proposition. What new value will companies tap into by migrating away from their legacy on-premise business applications to an environment where the majority of their infrastructure workloads, applications, and even their business workflows are ceded to third-party providers? How much cost and complexity will be required to make that transition? And what is the risk or opportunity cost of proceeding on a more deliberate and less accelerated path?



For many utilities, their initial value proposition for expanding cloud adoption was heavily based on the promise of IT efficiencies and cost as major factors driving their decisions to pursue expanded adoption of the cloud within their organizations. But as time has gone by, the basis for these decisions has evolved considerably, as companies assess the complexity of these implementations and the associated lifecycle costs associated with their application.

Despite the obvious benefits in terms of decreasing up-front software costs, and simplifying application and infrastructure maintenance, some have begun to accept that costs may actually be higher in the long run once implementation complexities, ongoing software fees, and rate recovery considerations are factored. Until we have more proven track records and a larger body of deployments to draw from, the jury will still be out on whether these benefits actually materialize.

“Over 40% of utilities now point to ‘remaining relevant’ and ‘pursuing new business models’ as top reasons for expanding their cloud presence.”

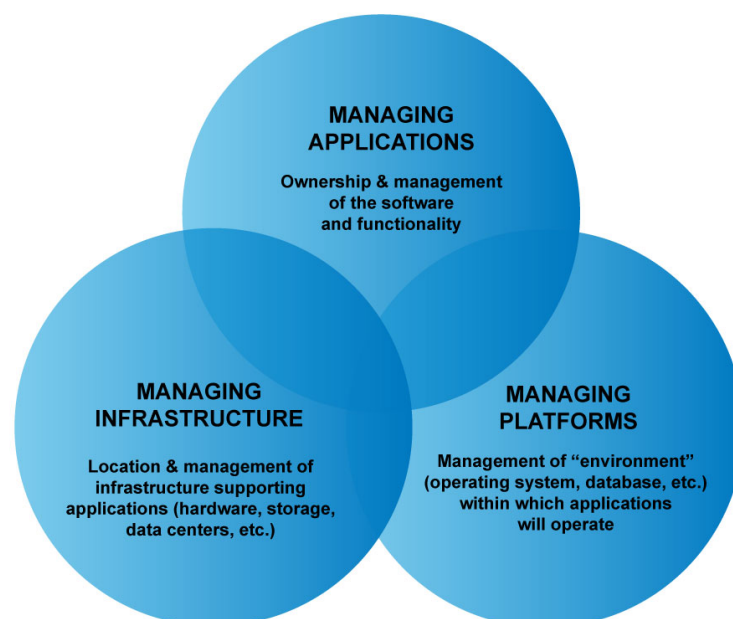
The reality for many utilities today is that the majority of their cloud investments are being justified less on the immediate efficiencies and cost savings produced, and more around how an accelerated cloud strategy will unlock further innovation in their business models, and the added flexibility and optionality these strategies provide their overall digital roadmaps.

Among these more strategic considerations driving increased cloud deployments include:

- Integrating more dynamically with customer engagement channels that are increasingly moving outside of the utilities’ sphere of influence
- Accessing new insights and machine learning that external cloud environments will accelerate
- Adapting to the increased volume of data from infrastructure assets and behind-the-meter IoT devices
- Integrating with other emerging cloud-enabled ecosystems such as smart cities, micro-grids, retail providers and external marketplaces, among others

Still, it’s worth mentioning that the nascent and constantly evolving nature of the cloud dictates that choices being made now are based on the constraints of the collective body of knowledge and evidence in the market, and most have begun to realize that there will likely be future benefits (and risks) to cloud when implemented en-masse that are un-foreseen today.

KEY CHOICES FOR COMPANIES AS THEY ARCHITECT THEIR CLOUD STRATEGIES

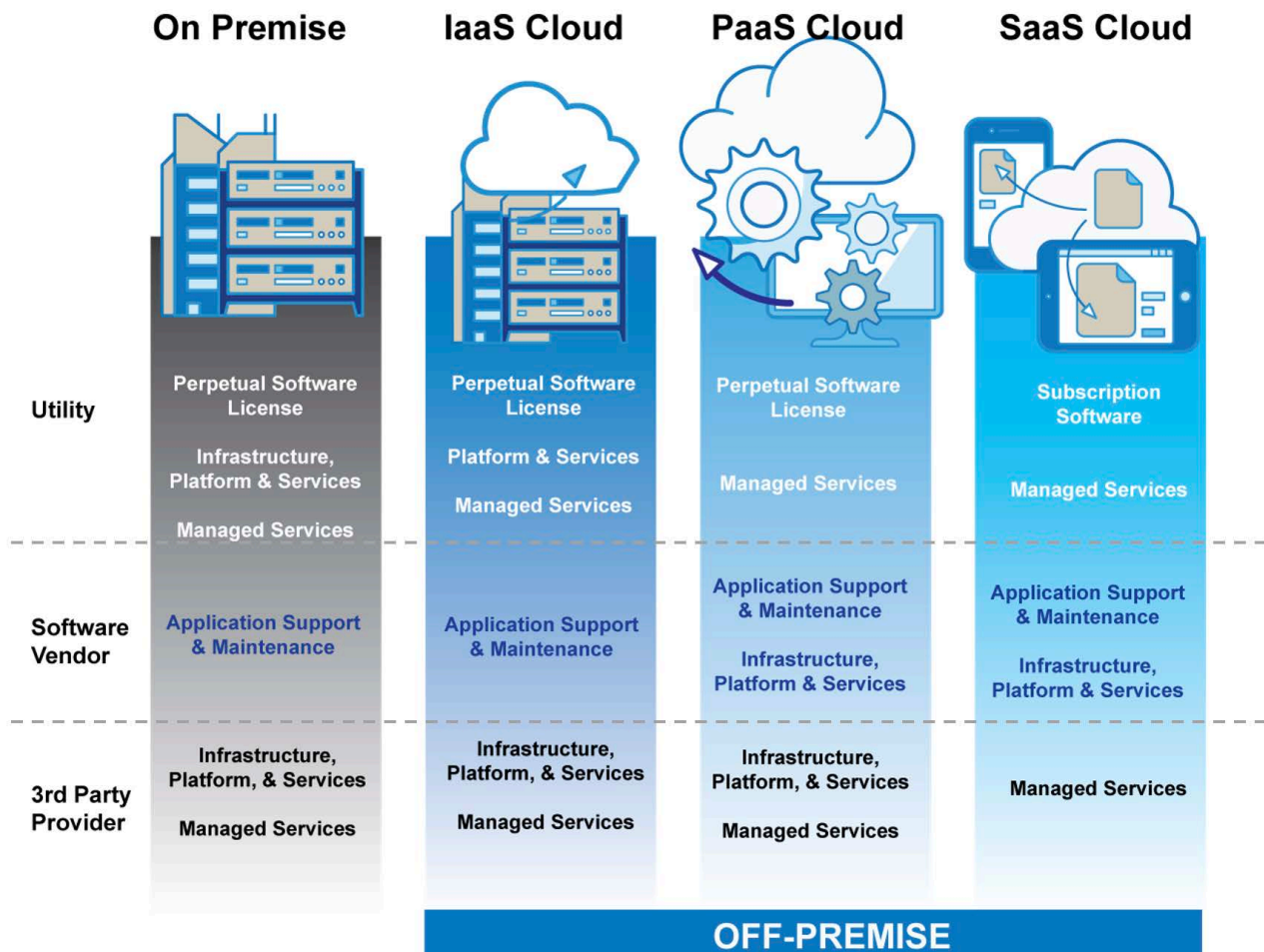


CLoud STRATEGIES AND CHOICES

As companies evolve from very early stage and often experimental cloud strategies toward a more holistic cloud strategy for their organization, decisions are being made as to what degree of responsibility will be ceded to third-parties to operate, administer, or manage across three broad areas. These three areas are infrastructure (hardware, storage, and networks), the provision of platforms (hosting and operation of the databases and runtime environment), and the management and operation of the applications themselves.

But as many utilities are finding, these choices are not without complexity. They require careful consideration and decisions around specific activities within each area as to the degree of management and control ceded to others. As utilities migrate away from pure on-premise solutions (which for many organizations still allows for some degree of management from software vendors and third parties), the first choice for many will be around the management of infrastructure and platforms upon which their business applications operate. The two most common models in use today for utilities reaching this stage in their cloud journeys are illustrated below in either the IaaS (Infrastructure-as-a-Service) or PaaS (Platform as a Service) models.

For companies at more advanced stages of their cloud journey, SaaS (software as a service) models are being embraced for at least one or more of their enterprise applications. Most major software vendors featured in the “Solutions Corner” have introduced partial or full SaaS based applications within their mix of utility offerings.

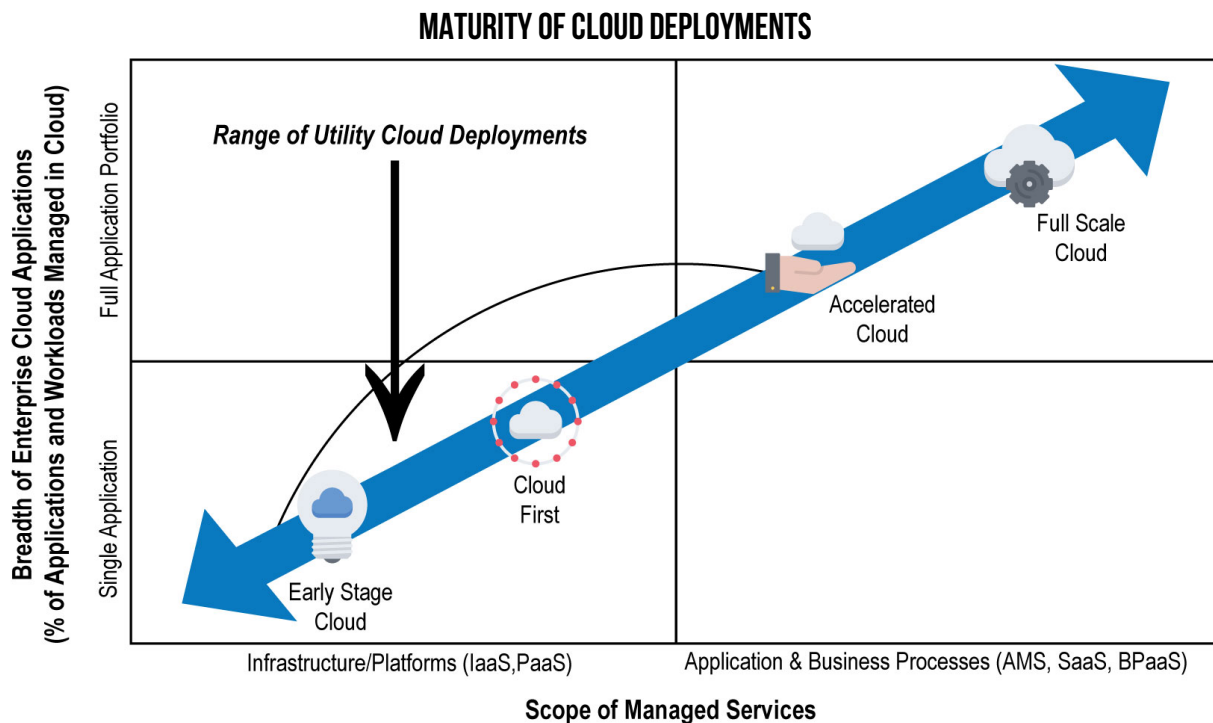


While these are primary choices utilities will make in their cloud journeys, there are a variety of hybrid models emerging around how these options are deployed. These involve such strategies as combining PaaS with AMS (Application Managed Services) and BPaaS (Business Process as a Service), where some companies are considering third parties for full management of business processes and workflows. BPaaS is also being considered by some as a more risk-managed adaptation of traditional BPO (business process outsourcing) popularized many years prior.

EMERGENCE OF CLOUD FIRST

As companies traverse their journeys away from pure on-premise environments through these various choices, some utilities have embraced a “cloud first” strategy as a guiding principle that any new application being considered for upgrade or replacement shall first consider cloud as a default scenario for operating their infrastructure and application environments. While these are not firm commitments to any one of these environments, they represent a first line of defense in their business cases to ensure all cloud options are evaluated and given credible consideration.

Companies embracing this philosophy have recognized that cloud is no longer just a possibility for their organization and something to be experimented with on the fringes, but rather a deliberate enterprise strategy to evolve their digital ecosystems more holistically across the business.



The reality is that many organizations inside and outside of the utility industry consider themselves still at early stages in their overall cloud journeys, having only moved portions of their enterprise applications into one of the models described above. In fact, a recent study commissioned by IBM and McKinsey revealed that only 20% of workloads have been fully migrated away from their legacy environments into cloud alternatives, the balance of which will require an extended journey that will progress over the next several years.

MANAGING RISK THROUGH HYBRID & MULTI-CLOUD

As mentioned above, one of the main reasons for the shift toward more cloud enabled digital ecosystems is the flexibility and optionality it provides within the utility operating model. The same is true with how utility cloud environments are designed and implemented. This relates not only to the decisions companies make in their progression away from on-premise environments, but also includes the choices utilities make around the partners they select to manage their infrastructure and platforms.

As the study above suggests, reliance on on-premise environments will likely exist for years, and as a result, will require companies to embrace hybrid cloud models where at least some of their infrastructure and data will be managed in a combination of on-premise and cloud environments. Many utilities have already embraced this model by necessity, as regulations around security and privacy restrict some data from being managed outside of on-premise environments.

“90% of companies operating in cloud environments utilize a multi-cloud strategy to manage their infrastructures and applications.”

The same can be observed in the selection of vendors and platforms to manage these activities. For a variety of reasons, including the avoidance of vendor “lock-in” and the need to diversify and manage data security risks, most utilities are envisioning multi-cloud environments as a standard that they will embrace throughout their cloud journeys. In their recent report referenced above, IBM and McKinsey and Company reported that 90% of companies, regardless of the stage they were at in their cloud journeys, were operating in a multi-cloud environment - where multiple cloud vendors and platforms were utilized within and across their infrastructure and application workflows.

BARRIERS TO OVERCOME

With many utilities still in the early stages of their cloud strategies, there is an open acknowledgement that even initial milestone achievement will require major organizational and cultural change. Again, this is not unique to utilities as most organizations outside of the industry, even those with much higher levels of cloud adoption, have hit plateaus in accelerating their cloud journeys. Below are some of the challenges facing utilities as they progress through the various stages of their cloud lifecycle:

Security & Privacy: Clearly this is one of the biggest challenges ahead for utilities as concerns about privacy and security accelerate across virtually every area of the value chain. Utilities remain unique in terms of the level of data and information they possess. Costs associated with breaches in customer privacy or unauthorized exposure of infrastructure networks can be enormous. So too can the cost of managing on-premise systems and infrastructure, particularly as many cloud environments have proven to be equally, if not more secure, in managing these risks. Look for strategies mentioned above in terms of hybrid and multi-cloud solutions, along with improvement in utilities’ data governance and security models, to help facilitate a risk-managed acceleration of cloud deployments.

Cost Justification & Recovery: Much work remains to be done to fully ascertain the impacts of cost and investment rationalization in terms of downstream costs, integration challenges and risks comprising total cost of ownership and lifecycle management of the application portfolio. Additionally, despite pockets of progress made, regulatory models will need to further evolve to encourage more equitable balancing of on-premise investments, which are typically capitalized and recovered, with downstream SaaS costs and infrastructure fees that have traditionally been unrecoverable O&M.

Architecting Vendor Partnerships: As more and more activities within utility digital ecosystems are ceded to third parties and software vendors, how utilities actually manage and administer these partnerships will dramatically increase in importance. Contracts and service level agreements used to manage vendors today will become more complex and require more orchestration among the various components of these environments. Having robust governance processes that ensure compliance with performance and availability SLAs will become more vital as utilities increasingly relinquish direct control over resources and business processes with cloud adoption. Underpinning successful partnerships will be the trust established between utilities and the vendor ecosystem to navigate uncertainties that will undoubtedly arise – requiring new skills around how these partnerships are created and nurtured.

“Organizational agility remains one of the biggest barriers to accelerated cloud adoption across utilities and non-utilities alike.”

Organizational Agility: Many companies in more advanced stages of their cloud journeys, believe the lack of agility within their organizations has become an impediment to overcoming deployment plateaus. A recent survey by McKinsey and Company observed a high correlation between an agility index they use to measure the skills and methods required to enable a fully mature cloud ecosystem, and the areas where organizations leading the cloud movement are stalling - the implication being that even industry leaders acknowledge that major change and cultural transformation in the agility of their leadership, development teams, and operating business units are needed to sustain their momentum.

Despite the challenges ahead, there is no doubt that the upcoming decade will bring a dramatic acceleration of cloud adoption within utilities’ digital ecosystems. Although utilities by and large are in early stages of their journeys, clear examples have emerged of companies well on their way to fully committing to wholesale cloud adoption across their enterprise.

Many software vendors have gone “all in,” transforming their utility offerings to promote fully cloud-based solutions, with aggressive pricing now characterizing their go-to-market strategies. Many, if not most, bolt-on solutions being offered today by innovative software vendors and start-ups offer their platforms and solutions in cloud-only models. And system integrators have followed suit by providing needed staff and solutions to augment the skills needed by their clients to facilitate their cloud journeys.

It will no doubt be an exciting decade as we watch this aspect of our digital ecosystem evolve and flourish.