TATA ELXSI
engineering creativity

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Unified Communications and the Cloud

Abstract

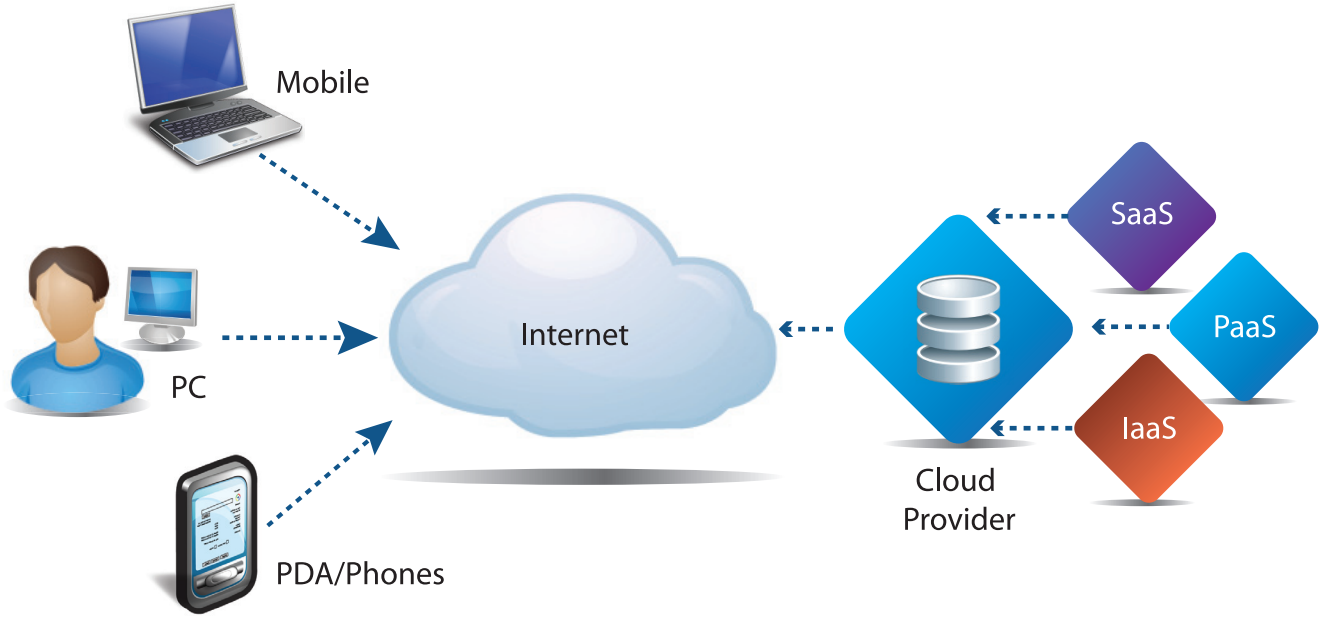
Much has been said of the term "cloud computing" and the role it will play in the communications ecosystem today. Undoubtedly it is one of the most overused and least understood terms in the technological universe. In order to leverage its potential in the best possible way, organizations must have a clear understanding of what cloud computing is, the ways in which it can impact their revenue stream, and what are the current trends and obstacles faced in adoption of this technology.

Contents

What is Cloud Computing?

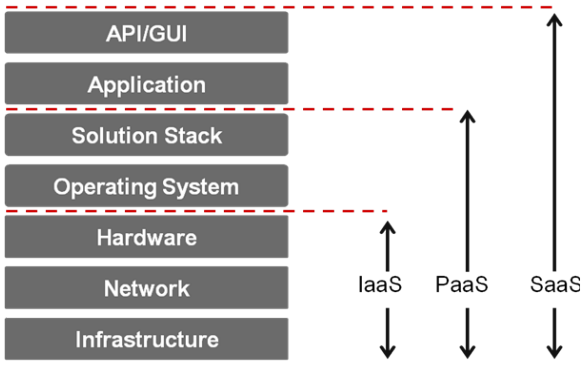
The National Institute of Standards and Technology (NIST) defines cloud computing as having five essential characteristics: on-demand self-service, broad network access, resource pooling, rapid elasticity or expansion, and measured service. It also lists three "service models" (software, platform, and infrastructure), and four "deployment models" (private, community, public, and hybrid), that together categorize ways to deliver cloud services.

In other words, cloud computing refers to any form of hosted services in the sense of application service provisioning that run client server software at a remote location. End users access cloud-based applications through a web browser, thin client or mobile app, while the business software and user's data are stored on servers at a remote location.



There are primarily three standard service models offered for cloud computing today which are Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS). All three models differ primarily on the extent of ownership of different platform layers by the service providers which is depicted in the diagram below.

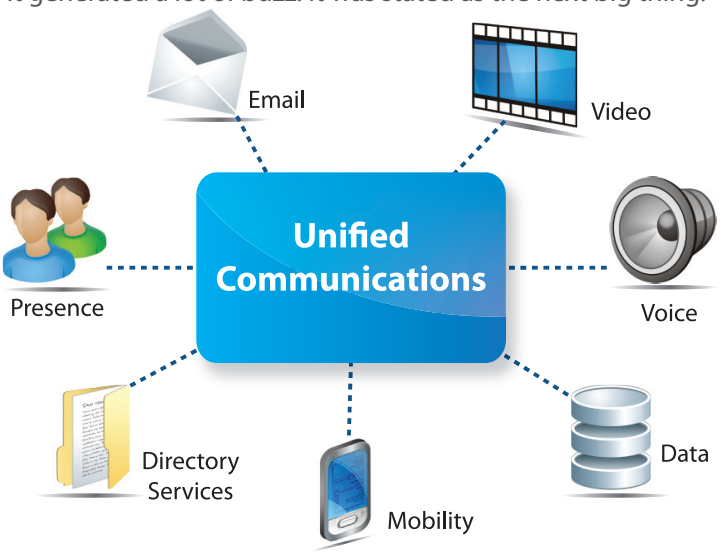
These models can be deployed in four deployment modes (public, private, community, or hybrid) which differ primarily in the exclusivity of the service- whether to a single organization (private), between several organizations (community), open for public use (public), or a combination of two or more models (hybrid).



Responsibility of service providers in different cloud computing models

Unified Communications and Cloud Computing

When the term Unified Communications was coined, it generated a lot of buzz. It was stated as the next big thing. It was expected that organizations would flock to it like fish to water due to the promise of seamless integration of voice, video and data, across platforms and devices.



But this was not exactly what happened. Though successful initially and adopted by IT pioneers and enthusiasts alike, it failed to establish itself as a disruptive force in the communications ecosystem. One main reason for the falling out was that UC vendors and service providers failed to provide a hard case for ROI, instead laid entire emphasis on improved communications and collaboration without addressing most CIOs' question of how will UC lead to big savings in telecommunications and technology costs if they implement it.

Hence, the performance of UC has been lackluster to say the least with enterprises shying away from making huge investments into upgrading their existing infrastructure to this new platform. All this changed with the advent of cloud computing and the coining of a new term UCaaS.

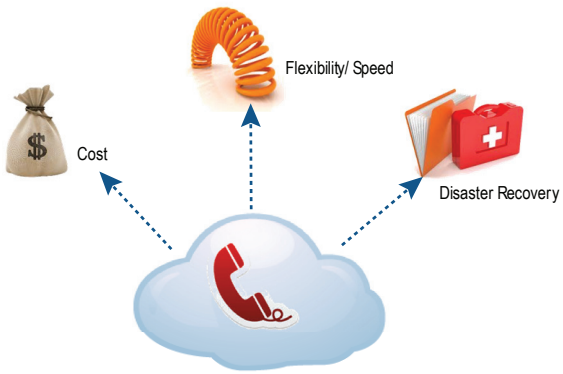
What exactly is UCaaS and what differentiates it from the Unified Communications ecosystem?

UCaaS stands for Unified Communications as a Service. It is a term derived for the hosted Unified Communication services being provided by service providers such as web based videoconferencing etc. The main advantage of UCaaS is that, it has been able to deliver exactly what UC wasn't able to provide over these years - huge cost savings in the wake of low capex, opex, maintenance, and upgradation expenses.

It provides entire functionalities of UC, coupled with the benefits of cloud computing such as:

- Improvement in the cost structure: With a pay per use model, organizations need to pay only for the services consumed. This results in huge UC infrastructure investment savings.
- Speed and flexibility: The organization can simply make use of the vast capacity of the cloud service provider's servers to instantly meet the additional bandwidth required.
- Business Continuity/ Disaster Recovery: UCaaS helps to eliminate dependence upon on-premise services or takes over in case on premise services are not available.

Though all of these benefits are more suited for business startups and small organizations in terms of expenditure and investments involved, it is the bigger firms that have benefitted the most from the migration of UC to the cloud.



Unified Communications as a Service (UCaaS) Benefits

Cloud UC makes more sense for large organizations, because their markets are spread over different geographies and diverse user communities and their communications are unlikely to change for the foreseeable future. With growing concerns on recession and a volatile world economy, the focus of big firms today has been on cost cutting and reducing expenses as much as possible.

IDC estimates the UCaaS market to grow from $2.52 billion in 2013 to $7.62 billion by 2018, at an estimated CAGR of 24.8 percent. This growth will be driven increasingly by the implementation of hosted solutions as enterprises look to reduce costs and improve productivity. Other factors including the sluggish economy and superiority of as-a-service models may contribute to an even faster uptake to UCaaS than anticipated, as businesses that may have previously deployed an on-premises solution may opt instead to deploy UCaaS.

The Way Forward for Organizations

For large organizations, migration to cloud should not be sudden but a step by step process. They must follow a pragmatic path while approaching cloud computing by adopting new technologies, transitioning from physical to virtual IT assets, and adapting existing IT best practices to leverage the dynamic world of cloud computing.

UCaaS: Current Market Trends

The Changing Eco System in UC

According to MS Cloud Adopt survey in 2012, 49 percent of companies said that they would like to adopt VoIP from cloud vendors over the next three years. One effect of this trend can be seen in the increase in subscribers for Google Apps for Businesses and Microsoft Lync Virtual Client, which has grown 800% in the last year alone. This shows that the till now closed eco system of UC is opening up to adopt more and more software solutions to ensure inter-operability.

Intersection of UCaaS and SDN

Software Defined Networking (SDN) is basically an extension of virtualization that has been around the globe for the past several years to network infrastructure itself. By inserting a layer of intelligent software between network devices and operating system, SDN lets an IT professional or administrator configure networks using only software.

At the Open Networking Summit 2013, Microsoft and its partner HP demonstrated the ability of Lync, along with the OpenFlow Software Defined Network (SDN) controller on HP hardware, to dynamically allocate QoS, bandwidth and other network characteristics in real-time.

The intersection of UCaaS with SDN, as is being undertaken by UC companies such as Vidyo (Through its Adaptive Layering Technology), would enable optimization of audio, video and data streams according to the capability of each individual endpoint and network conditions and would result in better UC performance in the time to come.

Mobility

The main driving force behind UCaaS today is mobility. Employees today are no longer restricted to traditional office spaces and prefer to work from home and on the go. As such UCaaS assumes a new importance in the organization to stay connected with employees, as the landscape of the traditional office environment changes dramatically.

Vendor consolidation

Smaller organizations when going in for cloud supported Unified Communication usually prefer to engage with as few vendors as possible. Customers are demanding connectivity, telephony, collaboration, business grade instant messaging, and a host of other services from a single provider/ vendors specializing in UCaaS as their core expertise. Many are willing to sacrifice on features available from a provider of a single service, offering in order to gain the benefits from vendor consolidation.

Tata Elxsi's Cloud Ecosystem for Unified Communications

Tata Elxsi enables its partners to deploy solutions in the virtual environment owing to its extensive expertise and experience in Citrix, Microsoft, Amazon, IBM and VMware. Tata Elxsi provides device agnostic engineering & enablement services such as RESTful & development of SOAP APIs, thereby enabling infrastructure products to interface with enterprise & service provider clouds.

The end benefits of the solutions are enhanced mobility, reduction in operating expenses enabled by a pay per use model, reduced total cost of ownership, and improved network monitoring and services.

Tata Elxsi's UCaaS solutions

Cloud Enabled Video Conferencing Solution

Tata Elxsi worked with a leading supplier of telepresence, voice & video conferencing solutions to develop a Cloud-based video conferencing solution using VMware virtualization environment. Tata Elxsi's scope in the project started from the product requirement gathering phase and included development and testing phases. Some of the features developed were a user management framework (device manageability along with data collection, storage, and import and export capabilities); integration of the solution with social networking sites; SIP Authentication; localization for 10 different languages; email customization; conference scheduling, calendaring and certificate management.

Both manual and automation testing for functional and non functional aspects of the product were done in-house.

The product can run on both Windows and Mac platforms, and browser support has also been provided. Interoperability testing was also done, to ensure that the product runs with the client's existing telepresence systems and third party vendors.

WebRTC based Video Conferencing solution

Tata Elxsi has developed a WebRTC based video conferencing solution which enables web browsers with Real-Time Communication (RTC) capabilities. It is primarily a browser to browser video communications service with chat and game applications and can run on multiple browsers, with the need of installing plug-ins. Additional features include Instant Messaging, PPT and Whiteboard sharing, and Conference management.

Customer Support Services

Tata Elxsi supports UC&C companies by providing help in customization, product management support and offers 24X7 helpdesk support for Cloud-based application maintenance.

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