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Avasant

Amit is a Partner with Avasant LLC, one of the globally top ranked sourcing advisory and management consulting firms. Amit is one of the key leaders of the firm in strategy consulting, M&A and global shared services optimization practices. He possesses significant international management consulting experience and has a deep understanding of the outsourcing industry. He has more than 17 years of management and consulting experience with some of the best names in the industry before becoming a founding member of Avasant, including Gartner, PriceWaterhouseCoopers and Patni Computers. Amit's experience spans strategy, shared services restructuring, implementing multi-sourced services and governance processes and enterprise level change & risk management.

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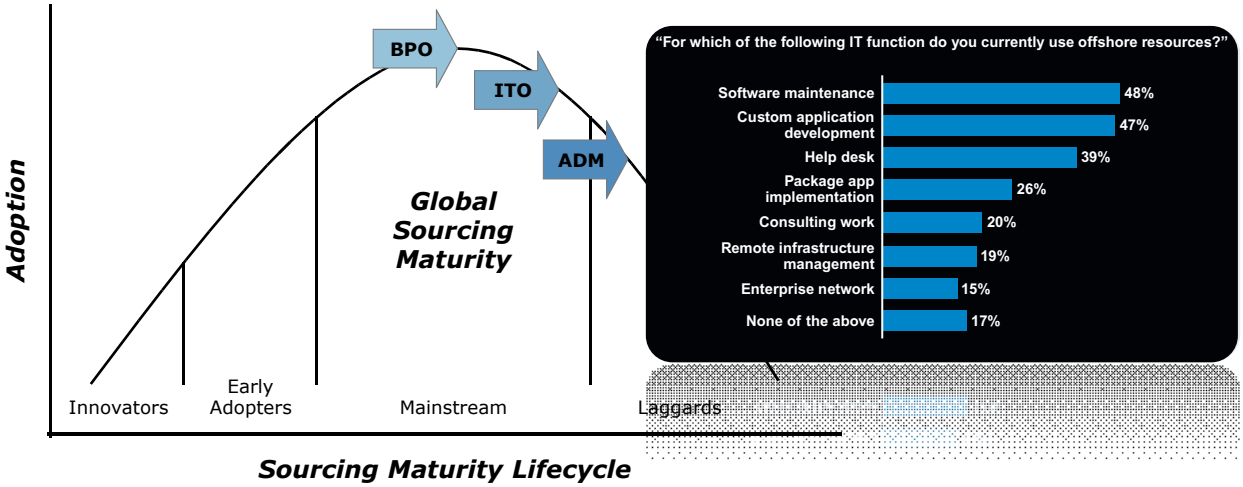
Emerging Models in Infrastructure Management

Background

IT Infrastructure has traditionally been the bastion of stable management models. While IT application management went through a dramatic shift in landscape due to evolution in programming languages as well as increasing offshore delivery viability, IT Infrastructure business stayed virtually unchanged for several decades. However, the rapid pace of technology growth has now led to emergence of several new models of IT Infrastructure delivery and consequently, management practices. While the traditional Application Development and Maintenance outsourcing is in maturity phase as noted by diverse and large buyer industries, demand for RIM services is estimated to further grow by at least 25 to 30 percent p.a. in the next 3 years.

This paper explores some of the emerging models for IT Infrastructure outsourcing and the reasons thereof.



Impact of Economy on Infrastructure Sourcing Models

The current economic downturn has already lasted since 2008 and there is a strong possibility of the recession continuing into 2012. Due to constant economic challenges significant changes have been observed in the nature of deployment in new as well as existing deals. The following are the key changes to infrastructure sourcing that we have witnessed during this turbulent time:

- **Changes in Demand** – Clients are no longer as much interested in looking for a single solution that meets all infrastructure needs as they are in identifying best of the breed solutions that can offer flexibility in service provisioning and can keep up with technology change. A large, monolithic infrastructure environment, if it is hard to change, is no longer viewed favorably in this environment.

- **End-Customer Requirements** – The IT infrastructure requirements are more and more directly tied to business requirements and are focused on being prepared for the constant change in business. The infrastructure is being asked to be much more agile in supporting business users than has been the case traditionally. The speed and cost of activities such as to set up mailboxes, provide remote access to working environments, enabling large scale data transfer and providing interconnectivity to myriad mobile devices are some of the examples of customer requirements driving emerging models in IT infrastructure management.

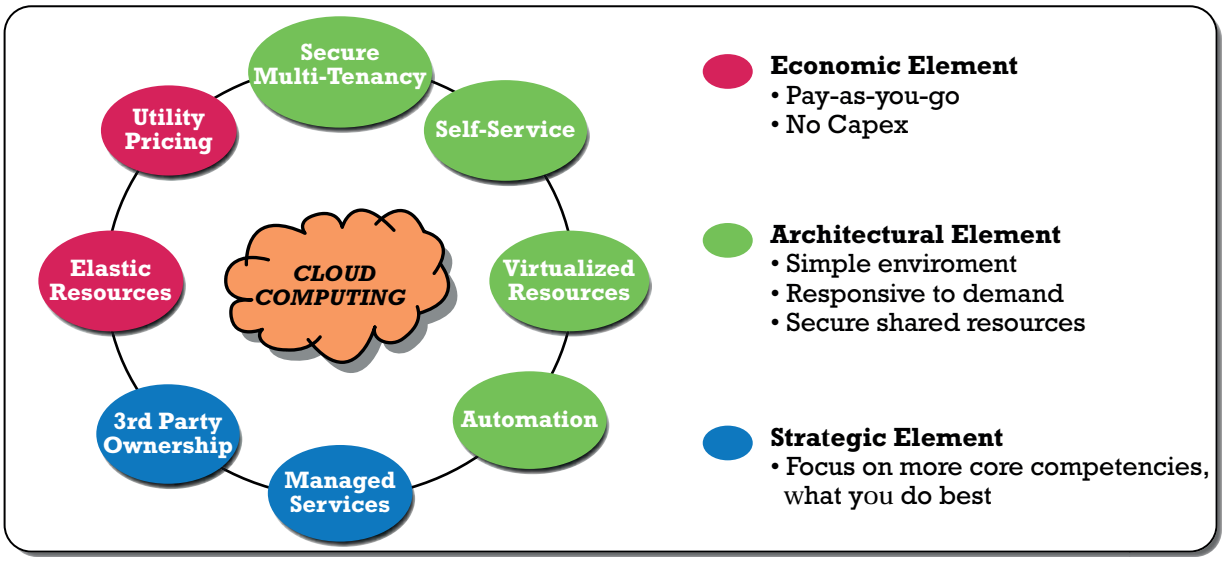
- **Consolidation & Virtualization** – There has been a conspicuous trend towards consolidating and virtualizing IT environment in the past several years with a view to managing costs as well as upgrading from legacy systems that could not allow for modular growth and seamless sharing of environments across applications. This step, as one of the essential elements of leveraging cloud based shared infrastructure technologies is currently one of the key focus areas of a number of organizations.

- **Nature & Scale of Services** – The traditional models of physical business locations being hard-wired to data centers are evolving rapidly to providing an IT environment that can grow and change to support a multitude of fixed and mobile devices, for example, multiple studies are pointing towards the Tablet being the platform of choice for many industries soon. In return for flexibility, there is a growing realization and acceptance of using shared infrastructure for many of the non-critical applications.

- **Cost** – IT Infrastructure is the new frontier for cost reduction in most of the IT departments across the globe. The ongoing recession is putting enormous pressure on CIOs to do more with less and IT infrastructure, with normally the largest budget of all IT departments is squarely in the sights of cost cutting. At the same time, the maturity of RIM (Remote Infrastructure Management) model as well as increased automation is now making it possible to reduce as well as eliminate considerable infrastructure and management costs.

Key Emerging Models

The new and emerging models are based on leveraging cloud technologies. Essentially, Cloud computing is the provision of dynamically scalable and often virtualized resources that is delivered as a service. The picture below shows the key elements that define cloud computing based infrastructure service provisioning:



Most of the emerging models in the current infrastructure management world follow a combination of the characteristics shown above.

In general, the new models can be categorized as follows:

- **Supplier Services** – This is the supply side of the cloud computing marketplace and consists of IT and business consulting, systems integration, outsourcing, and other services used to develop and support cloud services and infrastructure. These services include software components, such as application platforms, information management, system management, development tools and other software used to set-up and operate cloud services and infrastructure. They also include hardware components, such as servers, storage and networking hardware used to build cloud services and infrastructure. This market is one of the largest components of the eco-system today with a projected 2012 market size of $44B, with a CAGR of 23 percent.

- **End User Services –** This segment comprises of end-user services being provided from cloud computing, most notably the Infrastructure Services and Business Services. They are described below:

  - **Infrastructure Services –** Infrastructure services include PaaS (Platform as a Service) and IaaS (Infrastructure as a Service).

    - **PaaS –** PaaS constitutes of customers using programming languages, tools and platforms to develop and deploy applications on multi-tenant, shared infrastructure with ability to control deployed applications and environments without the need to manage or control the underlying resources. The examples include Google App Engine, Right Scale, Joyent.

    - **IaaS –** IaaS refers to the usage of processing, storage, networks, other computing resources with ability to rapidly and elastically provision and control resources to deploy and run software and services without the need to manage or control the underlying resources. The examples include Amazon Web Services, Rackspace and Akamai etc.

  The market size of Infrastructure services is projected to cross $30B for 2012, with a CAGR of more than 45 percent.

- **Business Services –** These comprise SaaS (Software as a Service) and BPaaS (Business Process as a Service).

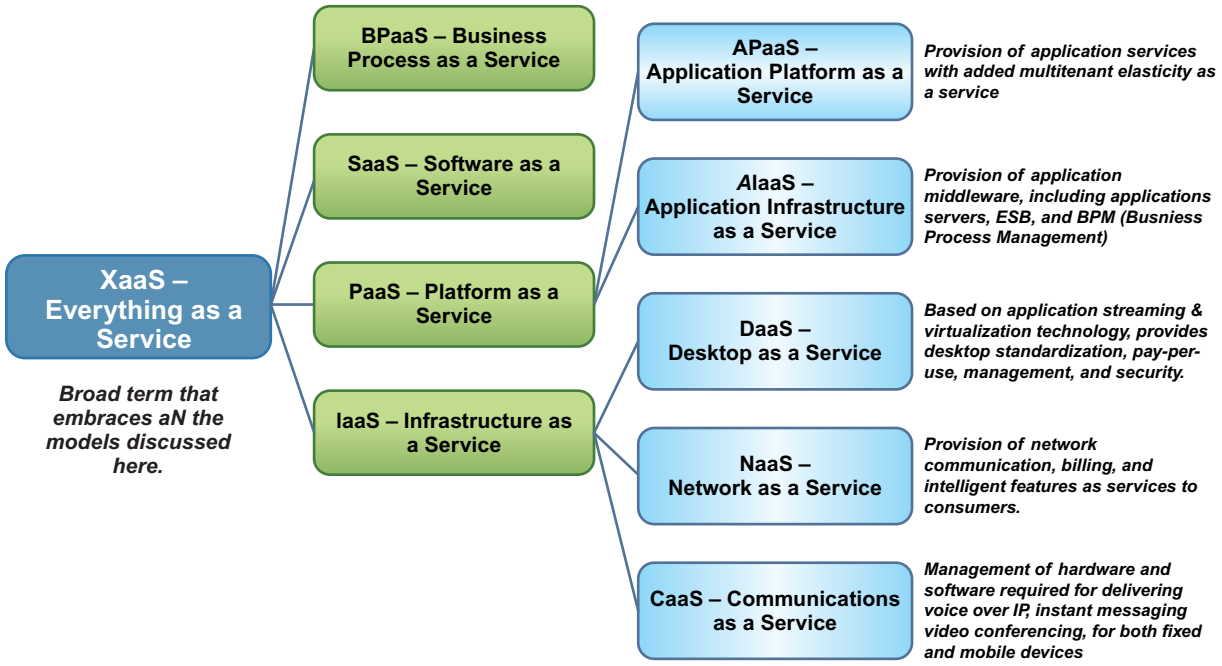
  - **SaaS –** SaaS refers to customers using applications (E.g., CRM, ERP, E-mail) from multiple client devices through a Web browser on multi-tenant and shared infrastructure without the need to manage or control the underlying resources. It is defined as use of an Internet browser to access software applications, eliminating the need to purchase, install, run and maintain the

programs on internal systems. The examples include Gmail, Salesforce.com, NetSuite, Hostanalytics.

- **BPaaS** - Customers consume business outcomes (E.g., payroll processing, HR) by accessing business services via Web-centric interfaces on multi-tenant and shared infrastructures without the need to manage or control the underlying resources. The Examples include Corefino and ADP.

The market size of Business services is projected to cross $52B for 2012, with a CAGR of more than 25 percent.

Another term that is emerging is XaaS (Everything as a Service). The following diagram broadly defines its categories:



In general, these models promise significant benefits from leveraging the global growth of computational and network grids. Some of the key perceived benefits are as follows:

- **Agility** - Cloud platforms improve time-to-application deployment by providing the option of developing and deploying new applications on existing infrastructure as quickly as desired. In comparison, traditional platforms can take up to three or four months to procure, install, and configure, many times stalling the application deployment process.

- **Predictability of Costs** - Cloud computing allows organizations to align IT budgets with application demand by hosting customer and public-facing Web applications with cloud providers. Organizations just need to pay for the resources they use, hour by hour.

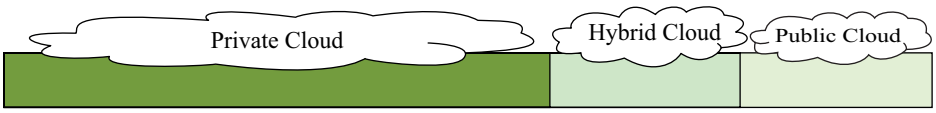
- **Managing Demand Variability** - Cloud computing provides a mechanism to manage peaks in demand for data center capacity, computing, storage, and network resources. As an example, organizations can easily push big batch jobs into the cloud instead of designing and building IT infrastructure for the absolute peak data loads.

- **Lowering CapEx Budgets** - Cloud computing gives the ability to deliver new applications without having to buy gear, raising the firm's capital expenditures. Application development and delivery can all be performed and managed via operating expenses.

- **Collaboration & Sharing** - Cloud computing allows organizations a relatively inexpensive and easily accessible way to share information by hosting data on public clouds rather than opening their organization's firewall to make it available to external parties.

At the same time, many of the emerging models are being tested in the real world and as risks get identified, organizations will have to plan required risk mitigation strategies. Some of the key risks include those related to data security and privacy, compliance with local and federal/international regulations and guidelines as well as evolving business continuity/disaster recovery scenarios with the new models.

From a service delivery perspective, the following diagram demonstrates the deployment models being used by organizations. It is likely that most organizations will deploy a mix of these models:



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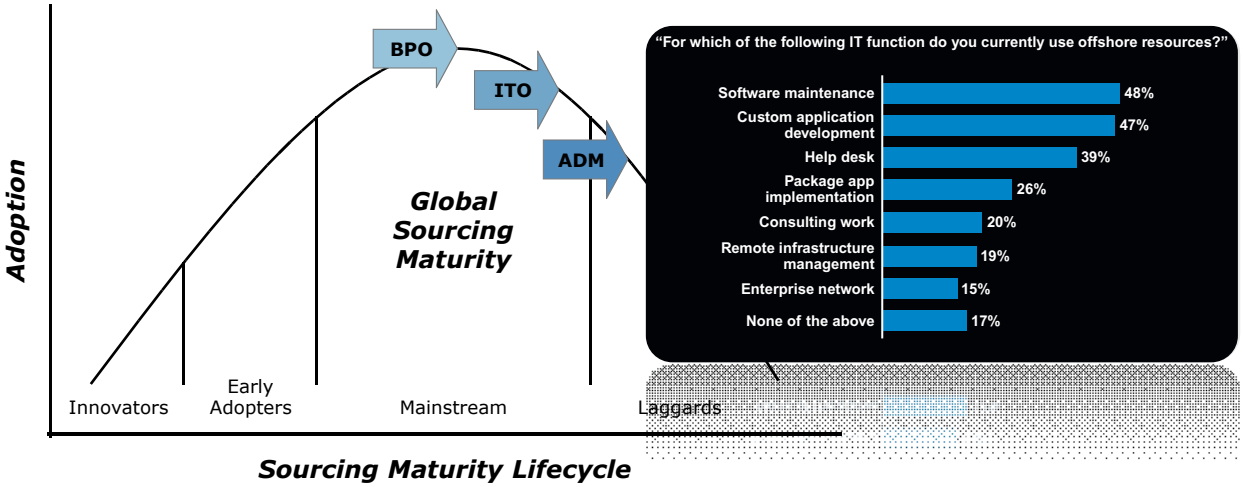

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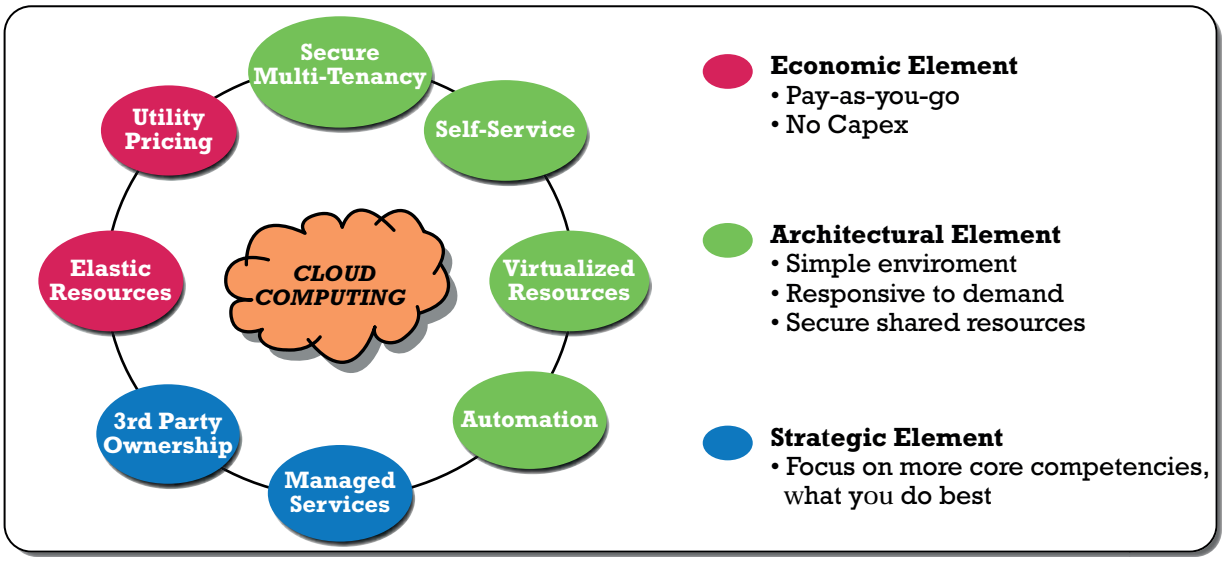

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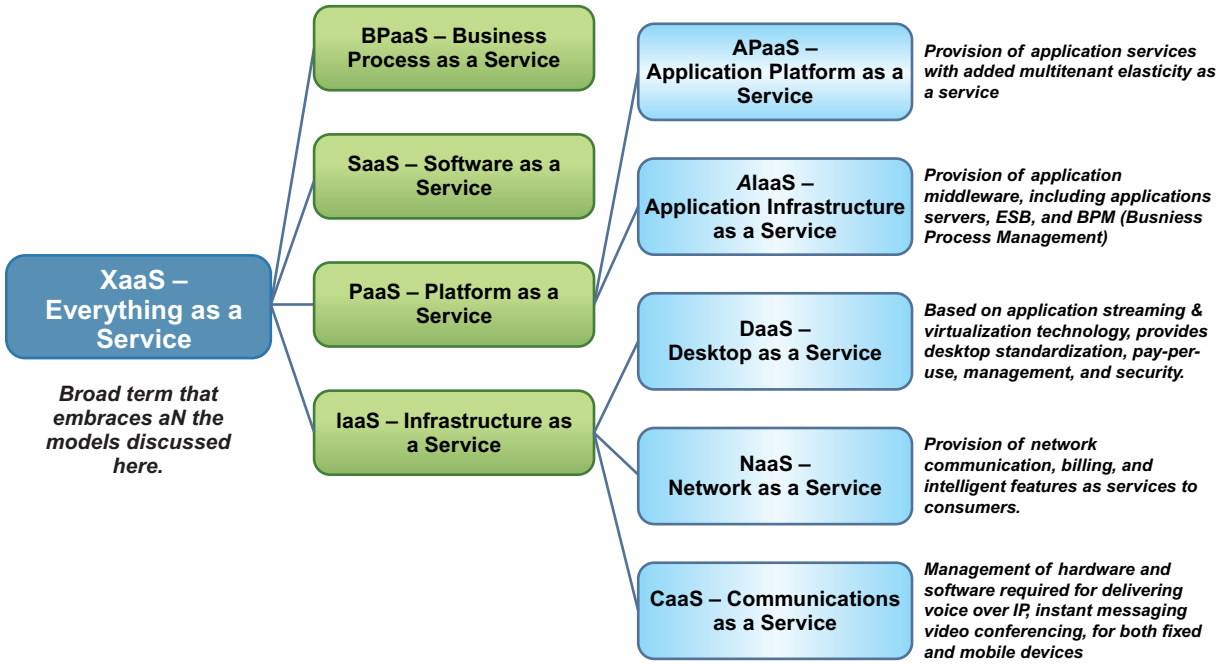

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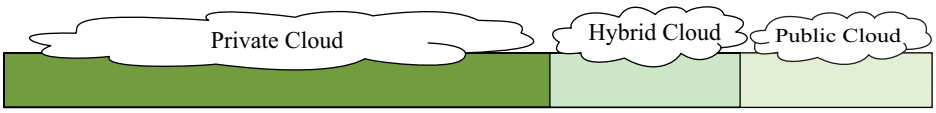

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As organizations look to deploy these models, it is recommended that they spend time in developing an enterprise level cloud roadmap. The following section identifies key recommended steps:

Key Steps for Creating an Enterprise Cloud Roadmap

- Define the cloud opportunity, establish direction, assess the application of cloud technology within the enterprise context, assess the deployment options, frame the service provider market, and plan the roadmap for cloud services.
- Identify and build a business case on the value that cloud computing can drive to the enterprise.
- Document and educate the IT organization on how cloud-based services fit within the context of existing technology plans and sourcing strategies.
- Evaluate internal skills and capabilities as well as provider service offerings and capabilities.
- Assess the relative cost, architecture, and skills impacted by applying cloud technologies to core business applications.
- Frame the risk and an organization's readiness for the adoption of cloud technology.
- Understand the management framework needed for the enterprise to manage Cloud Services.
- Last but not the least, discuss with peers and seek expert assistance as you embark on this journey.