



October 16-19, 2012  
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## **Intelligent Architecture for the Data-Driven Business**

# A Utility Approach To IT



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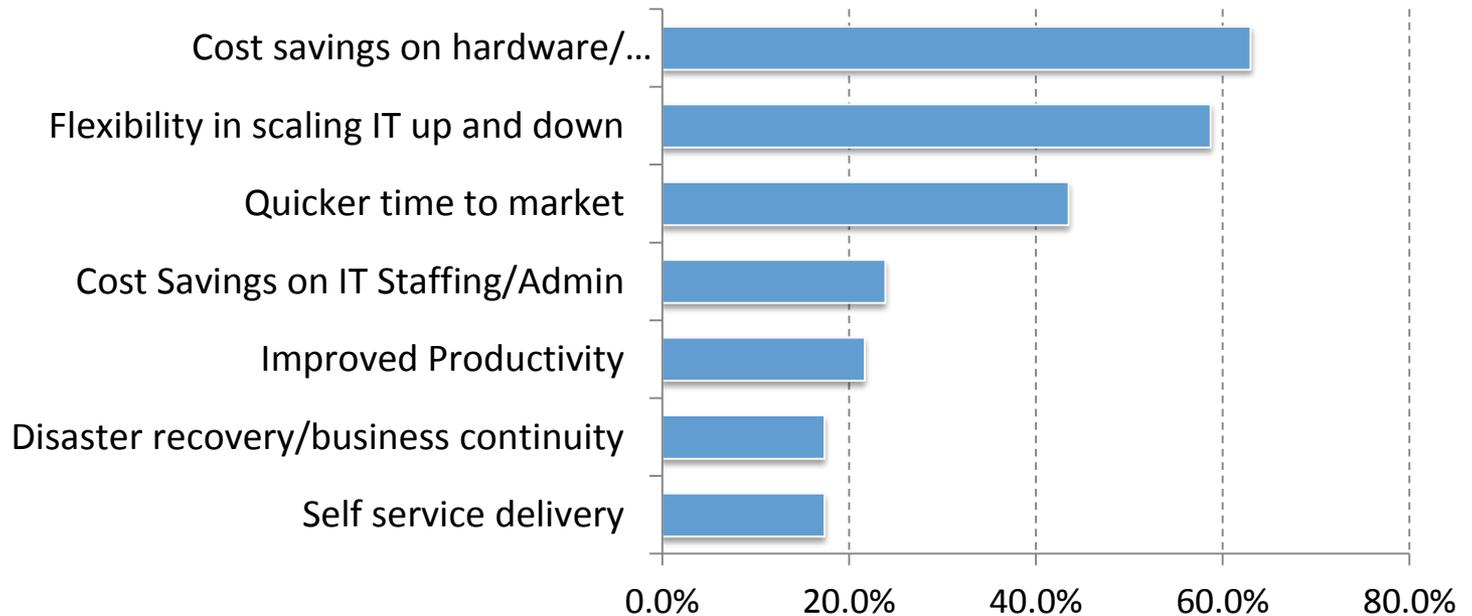
# Session Description

- As we continue down the “cloud” path, organizations are trying to change how they deliver and their users consume IT services
- Without defining what “improve” means quantitatively, they are going struggle to show ROI
- Worse – they may hit some hidden roadblocks by giving their users access to on-demand resources
- This session will outline how a utility economic model can be applied to IT to help address these issues



# Why are we shifting to a “cloud” model?

## Biggest Motivation for cloud usage



Source: The 451 Group Cloud End User Survey 2011

# We are going to the cloud!

- Why?
  - Users want more faster
  - On-Demand resources are only an expense account away
  - The industry (or the CIO, CFO, CTO, or the Consultant) told us we have to
  - The user doesn't feel like they are getting good value for their spend.

This is a big shift – we are moving from a command driven model to a user driven model.

# The Service Provider Model

- We call this shift (which is also a macro IT industry shift) the shift to the service provider model.
- IT builds a portfolio of services that they offer on demand to users
  - Much less emphasis on “building” versus providing a service
- Much more flexibility, improved responsiveness, and more variable costing
- Typically uses many more external resources than historical models
- Allows IT to become a contributor to various projects in a much more positive way than in a traditional “cost center” model.

And we're off like a herd of turtles!



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# So how do we know if we succeeded?

- Most organizations don't have a good grasp of the existing cost of IT operations
- This makes it difficult to compare new solutions and options (internal and external)
- If you don't know where you started, how could you possibly measure if your new direction will result in lower costs (or improved ROI)

It is critical to define success – what are we trying to achieve and why? How do we know if we succeeded?

# Some cloud truths

- With a shift to self serve models, users can get more when they want it – (need has nothing to do with this....)
- “Bursting” simply removes inherent limits allowing users to self serve even more – this can be both very good and very bad
- Couple this with traditional chargeback models, this is like “fixed price electricity” .....
- Or perhaps like allowing your kids to download as many songs as they like from your iTunes account...

# Why is this important?

- Imagine:
  - If you had fixed price electricity (and kids) and an unlimited supply
- Your house would be cool in the summer (even in Phoenix)
- The lights would always be on
- The pool would be warm in the winter,

AND

- There would be continuous brownouts everywhere

Removing the barrier to accessing resources alone (without a suitable supporting economic model) doesn't result in optimal resource usage and will result in poor ROI

# What's the solution?

As we migrate to a utility-like user experience, we have to migrate a utility-like economic model



# Introducing “The Utility”

# The nature of the utility

- A utility is simple creature – it is a measure that you are seeking to optimize
- Take value derived from computing:
  - In the enterprise, you want to seek to optimize the value of the computing – by providing the best service at the lowest cost
  - If people over use what is available, the incremental value will lessen, meaning wasted resources
  - If people use too little of what is available, you are over investing
- This is much simpler if you can consider your utility measure a commodity
  - A class of goods for which there is demand, but for which there is no qualitative differentiation across a market
  - It is fungible – the market sees it as equivalent, regardless of who supplies it.

# Can we treat computing as a utility / commodity?

- The answer is yes, with a note or two:
  - Is there an underlying value that we want to try and optimize?
    - Yes - Business Value
  - Can we treat it as a commodity?
    - Do your users care where it comes from?
      - Not really, so long as it does the job\*\*
    - So long as it accomplishes the job, does it matter who produces it?
      - Not really....

# The Notes....

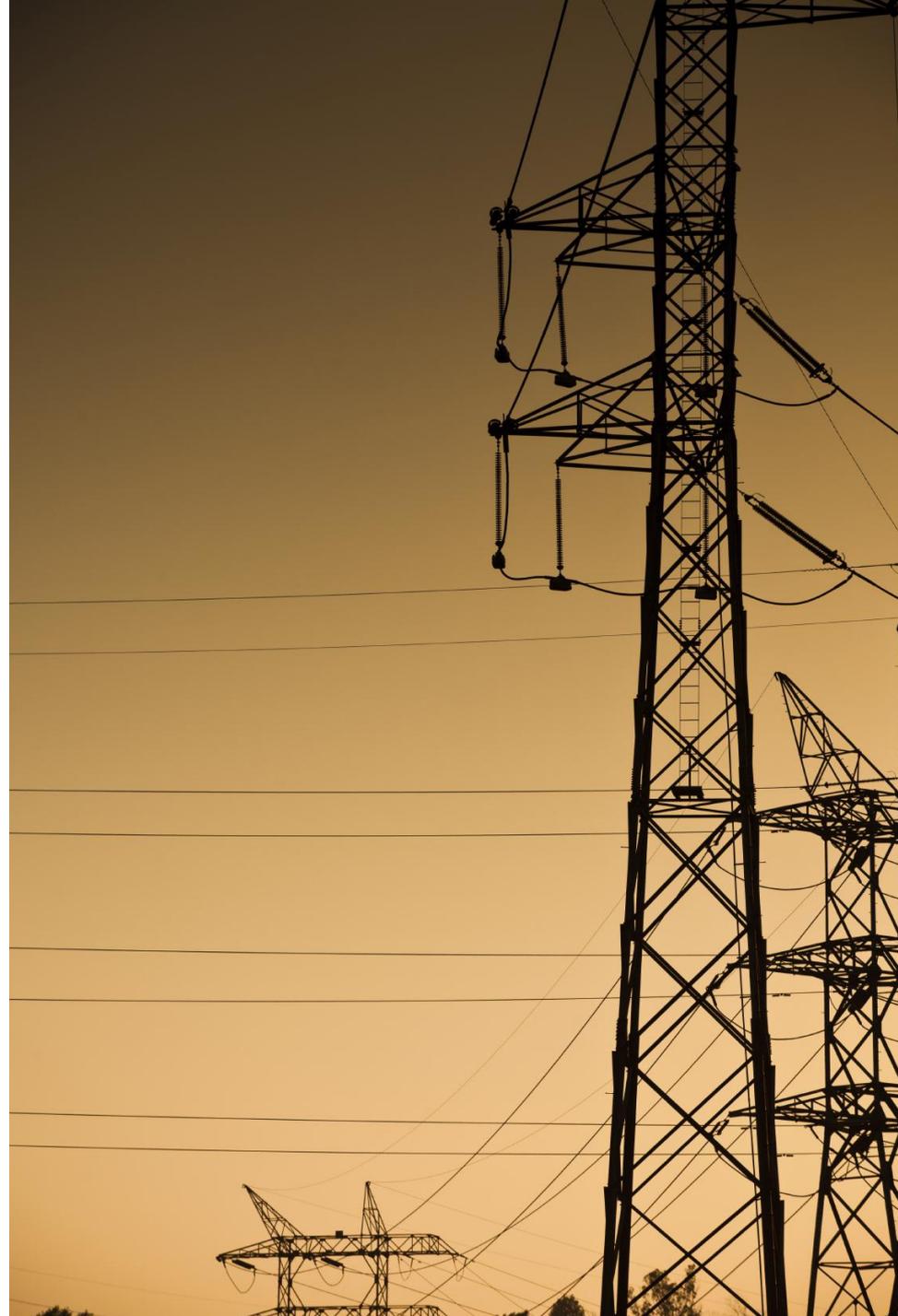
- \*We need to be able to quantify the supply and demand side of the equation to determine if we are optimizing
  - What do we measure?
- \*\* Since “the job” varies, we will need to account for various workload types
  - How does that work?
  - If there are differences is it still a commodity?

# Computing and Commodities

- While the definition deals with standardization, not all computing (or commodities) are the same
- However, they can typically be “graded” where so long as you fit into a “grade”, you are indistinguishable from others in that “grade”
- This is often done with publically traded commodities:
  - Oil, Gas, Bitumen (Oil Sands)
  - Types of corn, beef, and some others
  - Ore, lumber
- In the IT world this may look like “High Performance”, “Internal Secure”, “SLA”, “Test Dev”, “Generic Computing”, etc.

When a job is defined, a group can be applied, and a supplier fit to match the definition regardless of the brand or supplier

# Defining the IT utility

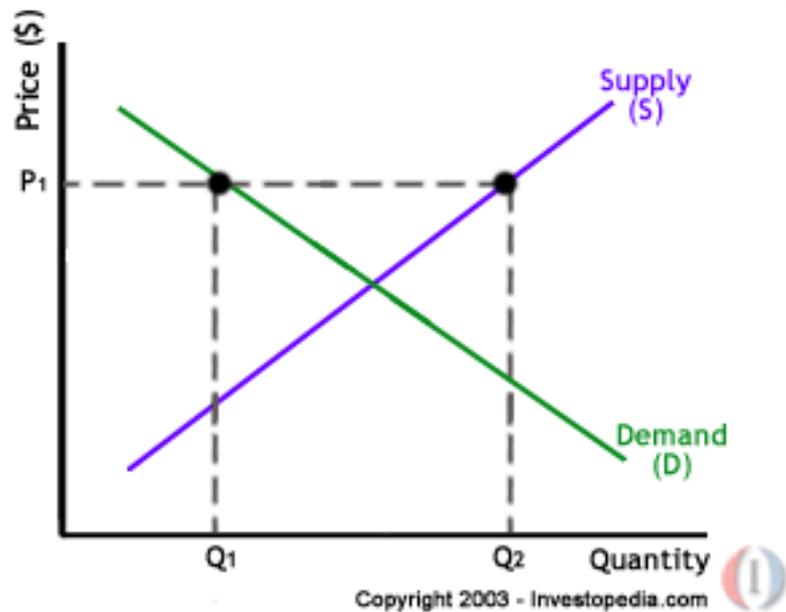


# Defining the Utility Measure

- In order to move this forward, we need to define a utility measure
- This measure's purpose is to enable us to quantify compute – express how much we have, and how much we need in a standardized way
- It becomes the impartial standard by which price can be discussed among disparate users and suppliers
- Think of the kW in the electrical model
- A standardized unit of measurement is REQUIRED for the operation of a commoditized market

The cloud industry today (in general) has not yet fully solved this problem – both by choice and due to complexity - every vendor has their own billing method, which makes apples-to-apples comparisons difficult

# The power of supply + demand + cost



# Measuring Demand

- Step 1 in optimizing your use of IT is to measure demand
- Think about putting an electrical meter on every appliance in your house that uses electricity and then charging back against your kids

What does this get you?

- A precise view of the volume of compute resources you need
- An understanding of who is using how much, how that changes over time, and what is and isn't being accounted for
- A path to optimization
  - With VM sprawl there are unused systems, badly configured systems, bloated systems, redundant systems, etc.
  - When you shine a light on that, and map them back to the cost centers, you see an almost immediate clean up occur
- The basis for how you compute grades need to be constructed and a view to how to re-shape your supply

# Quantify Supply

- Of course if you can meter demand, you want to quantify supply
- Identify your suppliers (various VM environments, large hardware groups, and external resources)
- Map actual consumption to supply by source
- Map total consumption to total supply – see a difference?

## Interesting Points

- You will likely never get to 100% - your hardware is probably not optimized for your demand profiles
- Overprovisioning and fragmenting lower utilization rates
- Engineering for load variation will destroy ROI

# Costing

- If you know capacity, and total operational cost, you can figure out cost per unit
- You can also measure the projected versus actual cost per unit
- Compare to actual chargeback – you will see a huge spread between what you think you charge for, and what your users use

This is the basis for the utility – you now know what kinds of computing you have, how much your users need, and what the costs of the various (internal) suppliers are.

This changes the conversation from what you CAN have, to what you are WILLING TO PAY FOR, which puts the ROI and determination of value on the line of business holder

# The impact of the IT utility



# Taking the Utility Forward

- This model forms the basis for the service provider model:
  - You can begin to identify additional internal and external service providers to round out the portfolio of services
  - You can re-align consumption into the best options (called best execution venue)
  - You can leverage on demand resources for variable workloads to improve ROI on capital investments
  - You can better design infrastructures to lower effective cost per unit values
  - You can charge users for what they actually use giving them control over costs, reducing wastage, and giving them better insight into true costing
  - You can baseline yourself against the external providers to demonstrate your value to your internal stakeholders

# The Result?

- This transition has nothing to do with cloud technology – this is about transforming your IT model to a “cloud-like” model
- It helps you drive economically sound decisions that support the business in a positive way
- It allows for optimization in the short term with limited investment, as well as long term planning and guided decision making
- Finally – when you finish your cloud project, you can measure your success

# Cloud Case Studies

## University of North Carolina



- **Challenge**
  - Couldn't get clear comparison of efficiencies across environments – public and private – for IT investment decisions
- **Solution**
  - 6fusion Cloud Resource Meter and UC6 platform
- **Results**
  - Accurately managing resources and comparing competing solutions

## The Weather Channel



- **Challenge**
  - Lack of clear IT project budgeting
  - Inability to identify actual cost and profitability of business initiatives
- **Solution**
  - 6fusion Cloud Resource Meter and UC6 platform
- **Results**
  - IT group has moved from being a cost center to an internal service provider

# Thank You

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6fusion provides utility-metered cloud solutions that enable global workload distribution across public, private and hybrid clouds in pay-per-use billable utilities. The unique metering algorithm, Workload Allocation Cube (WAC), creates a commercial standard to quantify supply and demand for compute resources.

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