**Goal:** Frame the problems with applications today and the reasons for Cloud Computing / Services.

**Speaking Points:**

* Shift to Cloud Computing
  + Today there is a shift emerging that we believe will eventually effect virtually every type of organization from small start-ups to large enterprises.
  + This shift is the use of cloud computing and cloud services.
  + We are starting to see organizations extend compute, storage, and other workloads to the cloud – where these workloads will be operated and managed by a software vendor.
  + Some organizations are using the cloud for temporary compute power, as is the case with the New York Times, who needed compute resources to convert their archived library of articles to PDFs – some are more permanent such as data archival.
  + So what makes the cloud attractive to organizations?

**Problems today:**

* Many of the challenges with building applications today have very little to do with development tools, programming languages, or frameworks.
* Rather, many of the challenges that organizations face are related to the infrastructure required to deploy, run, and manage applications.
* **Startups** - For example, imagine you were a startup building the next social networking site or online game
  + You have to worry about numerous issues that are unrelated to the functionality of the application.
  + [Capacity]
    - You have to think about the capacity requirements for the application.
    - Will it be used by a few thousand users or hundreds of thousands or millions?
    - How do users translate to bandwidth, storage, and server requirements?
    - Will the usage be consistent during all times of the year?
    - Will it be consistent over the lifetime of the application?
    - Can you handle spikes in demand if there were sudden demands for the app? (Digg Effect)
    - Ultimately, most organizations end up paying for more capacity then they need.
  + [Deployment, operations, and versioning]
    - Then you have to worry about deploying and operating your application
    - How do you deploy your application over multiple servers?
    - How do you role out updates to the app without taking it offline?
    - How do you manage patches?
* **Enterprise** - For established organizations, some of these decisions and problems may have already been addressed through a shared data center or an established staff and processes.
  + However, in enterprise organizations we often find that apps are silos of their own servers.
  + Established organizations also still have to spend a significant amount of capital and operations funding.
  + IT resources are applied to maintaining applications rather than delivering new value and functionality.
* **ISV** - Finally, if you’re an ISV who builds applications for use by other businesses you have to worry about a number of additional problems.
  + You have to think about your customer’s capacity, which gets factored into the cost of ownership.
  + Often, your sales opportunities are limited by your customer’s ability to deploy new applications.
  + Your customers often have existing assets such as Order Fulfillment systems, ERP systems, multi-terabyte databases, etc. that are running on-premise. You must be able to easily integrate with these assets.
* So many things get in the way for building new apps

Infrastructure - Operations, Patching, OS Management

Building and maintaining costly infrastructure

**So why are organizations considering or moving to the Cloud?**

When we talk with partners and customers, there are 4 general reasons why they’re starting to find the cloud attractive.

1. **Firstly:** they view it as a way to reduce their capital and operations costs.   
   Cloud Services provide a utility-like model to compute and storage resources – where organizations can only pay for what they use.   
   This is often referred to as a “Pay as you go” model.
2. **Secondly:** the cloud can potentially simplify the deployment and management of applications.  
   By relieving organizations from worrying about infrastructure and capacity.
3. **Thirdly**: Cloud Services can improve time to market for new applications.   
   Instead of spending weeks or months deploying servers and infrastructure to support new applications – organizations can quickly deploy applications to the cloud or use storage in the cloud where vendors provide pre-provisioned data centers.
4. **Finally**: Cloud Services can make it much easier to scale up or down as needed.   
   Instead of building out capacity for peak usage or not having enough capacity to deal with usage spikes, with the cloud the platform vendor manages the capacity and you only use (and pay for) what you need.   
   Think of this as “Pay as you grow”

**Notes:**

- Startup - scale and capital

- Enterprise - capacity planning, reducing opex.

* + - Freeing IT resources to focus on delivering new business value

Enable utility-like, “Pay as you go” billing models

Can’t get physical servers quickly.

How do you deploy your app to 200 nodes easily?

* + - The Red Dog messaging refers to increased agility as well.
    - Increase agility

On-the-fly scaling (up & down)

Automated operations

Focus on business logic

**Private versus Public?**

Private cloud is a type of cloud computing that delivers similar advantages to public cloud, including scalability and self-service, but through a proprietary architecture.

Public clouds, such as those from [Amazon Web Services](http://whatis.techtarget.com/definition/Amazon-Web-Services-AWS) or [Google Compute Engine](http://searchaws.techtarget.com/definition/Google-Compute-Engine), share a computing infrastructure across different users, business units or businesses.

However, these shared computing environments aren't suitable for all businesses, such as those with mission-critical workloads, security concerns, uptime requirements or management demands. Instead, these businesses can provision a portion of their existing data centre as an on-premises -- or private -- cloud. Unlike public clouds, which deliver services to multiple organizations, a private cloud is dedicated to a single organization. A private cloud provides the same basic benefits of public cloud. These include self-service and scalability; multi-tenancy; the ability to provision machines; changing computing resources on-demand; and creating multiple machines for complex computing jobs, such as data analytics. Charging tools track computing usage, and business units pay only for the resources they use.

A business can also use a mix of a private and public cloud services with a hybrid cloud deployment. This allows users to scale computing requirements beyond the private cloud and into the public cloud (aka cloud bursting).