



REAL CLOUDS FOR REAL PEOPLE

Scott Radeztsky, Ph.D.
Sun Principal Engineer
Chief Technologist
Americas Systems Engineering
Sun Microsystems, Inc.



Outline

- Cloud Computing: for Business
- Get on the Same Page: Layers / Models / Domains
- Public / Private / Hybrid Examples
- Disruptive Analytics

Everyone is Talking About Cloud Computing

Software as a Service

Platform as a Service

Storage as a Service

Grid Computing

Database as a Service

Virtualization

Utility Computing

Application Hosting

Infrastructure as a Service

Driven by the Explosion of Unstructured Data

All Clouds Share Key Traits

One Service Fits All

Virtualized Physical Resources

Self Provisioning

Elasticity

Pay Per Use

Programmatic Control

And Some Trends are Emerging

Amazing Infrastructure / Densities

Open / Powerful Alternatives

Simplicity Scales

Bringing Compute to the Data

Working Code + Adoption > Committees

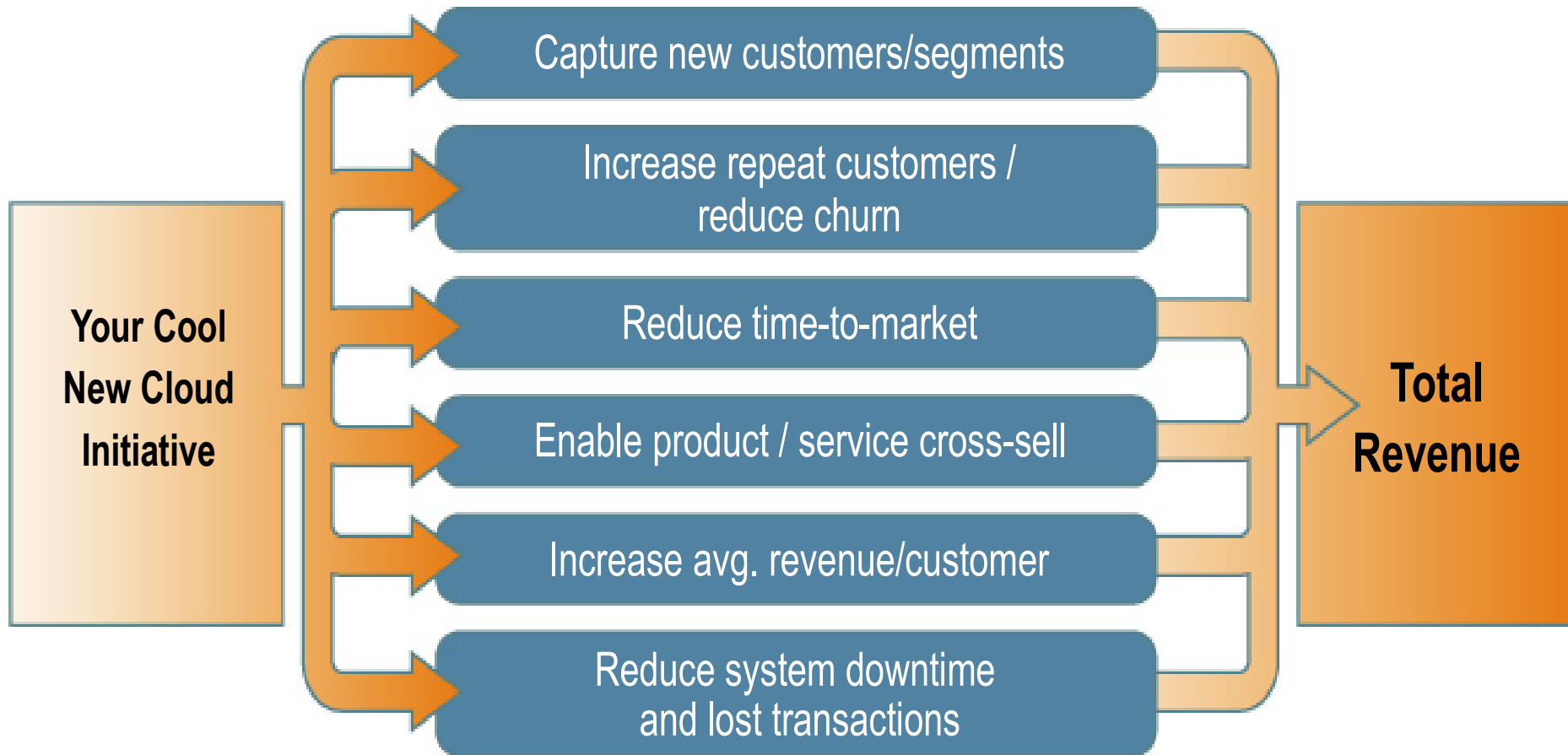
Hype / Lipstick on Pigs

KISS: Cloud Maker Better = Rainmaker



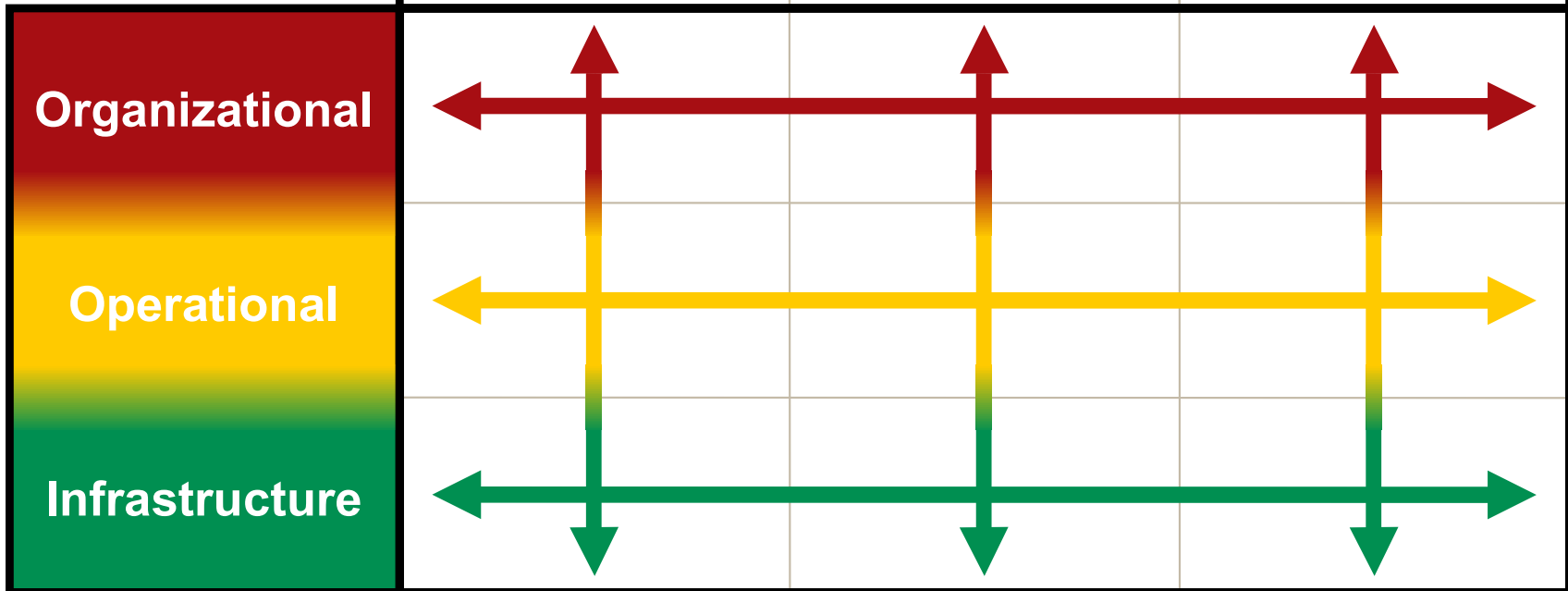
How does your initiative leverage disruption and bring value to the Enterprise?

As an Example: Increase Revenue



Getting Everyone Aligned

<p>WHY is this initiative important?</p> <p>ALIGNMENT with PRIORITIES (Organizational, Operational, Infrastructure) determines “significance”</p>	<p>WHAT are the specifics for this initiative?</p> <p>TIME to address REQUIREMENTS (Organizational, Operational, Infrastructure) determines “when”</p>	<p>HOW will the success for this initiative be measured?</p> <p>VALUE based on specific CRITERIA (Organizational, Operational, Infrastructure) determines “worth”</p>
--	---	--



A mountain goat with curved horns stands on a rocky ledge, looking out over a vast valley. The scene is set against a backdrop of blue sky and distant mountains. The image is partially obscured by a large blue circular graphic on the right side of the slide.

Layers

Business
Models

Application
Domains

different
clouds
for
different
folks

Cloud Computing Layers

Software as a Service

Applications offered on-demand over the network (salesforce.com)

Platform as a Service

Developer platform with built-in services (Google App Engine, Microsoft Azure Platform)

Infrastructure as a Service

Basic storage and compute capabilities offered as a service (Amazon web services, Microsoft's Cloud Infrastructure Services, Mosso)

Business Models

Public



You don't know who else is on the same server, network or disk that you are

Private



You own the server, network and disk, and decide who gets to run on it with you

Hybrid



You own some parts and are sharing some parts, though in a controlled way

Application Domains

HPC

Medical

Intelligence





Finance

Analytics

Web

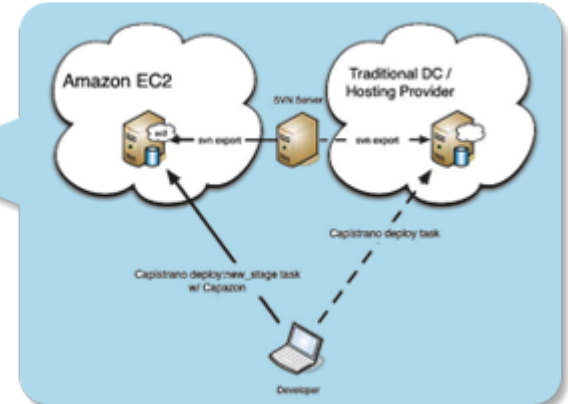
Domains Drive Differences
in Hardware and Software Architecture

Cloud Ownership Models

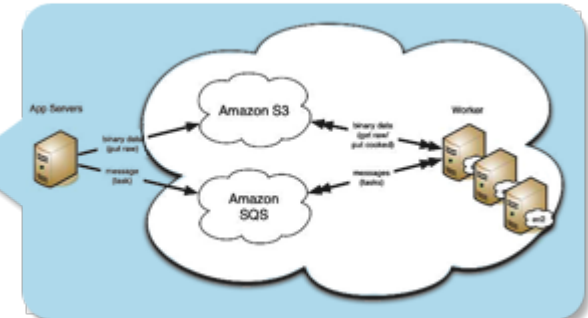
<p>USE the Cloud</p>	<p>LEVERAGE the Cloud</p>	<p>BUILD My Own Internal Cloud</p>	<p>BE the Cloud</p>
			
<ul style="list-style-type: none"> • Startup • SMB • Research projects • No cap ex 	<ul style="list-style-type: none"> • Temporary on-demand load • Functional off- load 	<ul style="list-style-type: none"> • Enterprise infrastructure grid • Drive internal IT economics • Standardized development environment/ services 	<ul style="list-style-type: none"> • Redefine services • New business offerings • Hosting and operations partners • Software vendors

Cloud Deployment Patterns

Test and Development

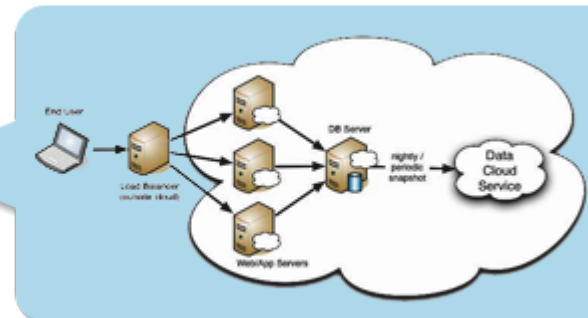


Functional Offload
(Batch Processes – *TimesMachine*)

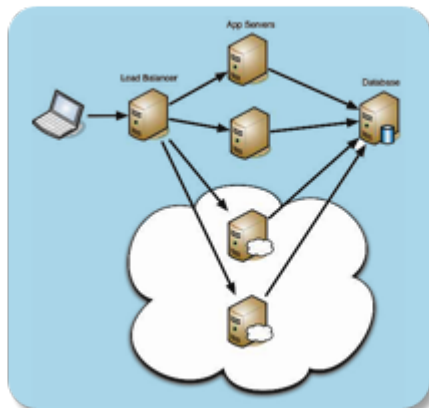
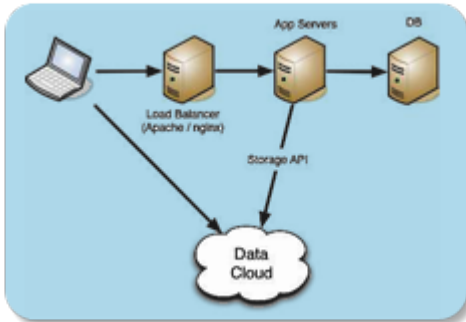


Functional Offload
(Storage – *SmugMug*)

Augmentation
(Temporary Load – *Animoto*)

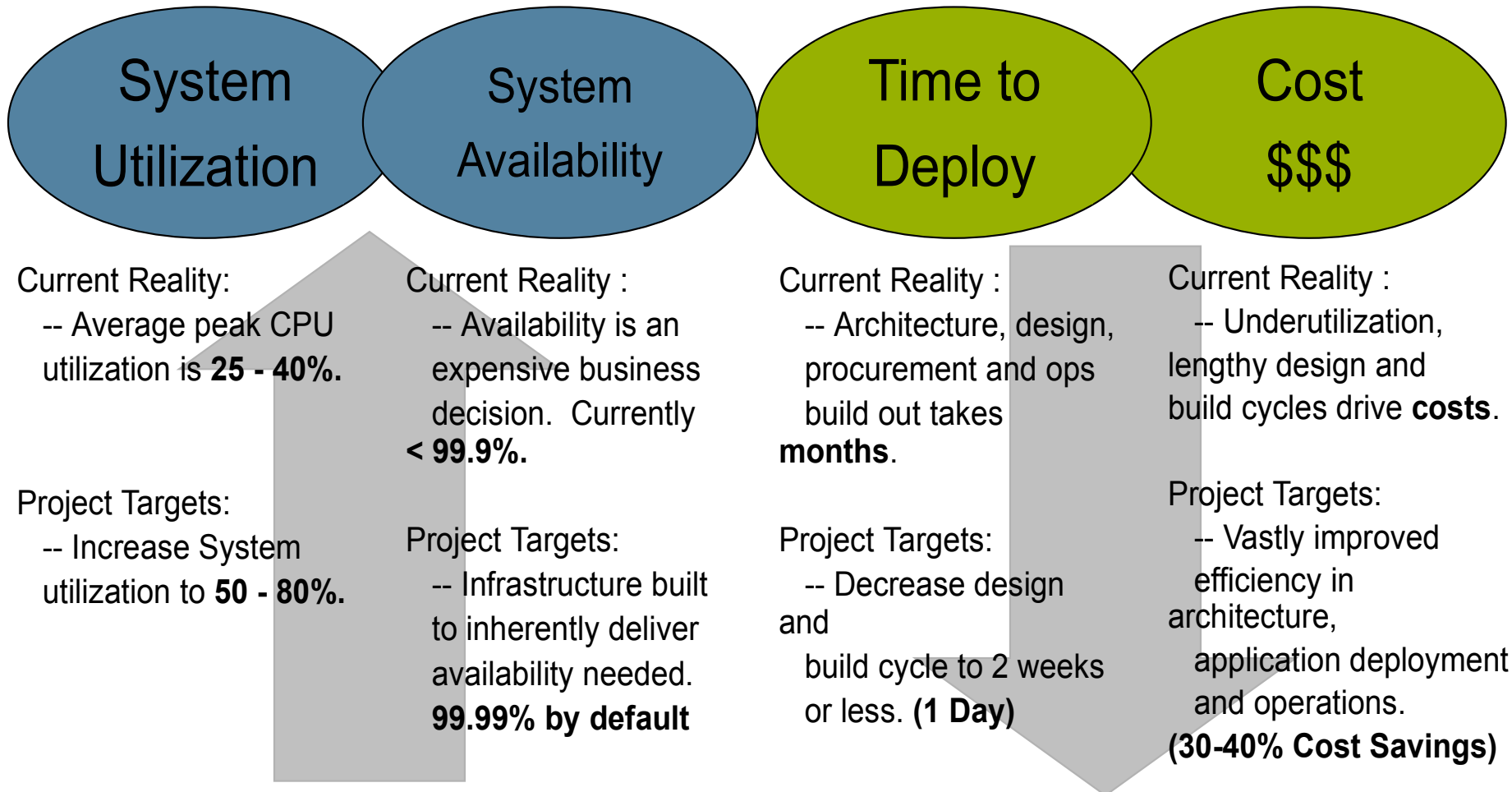


Web Service



Private Cloud Example

Standards & Methodology for Rapid Service Deployment



naming convention mapping between apps and infra

Public Cloud Example

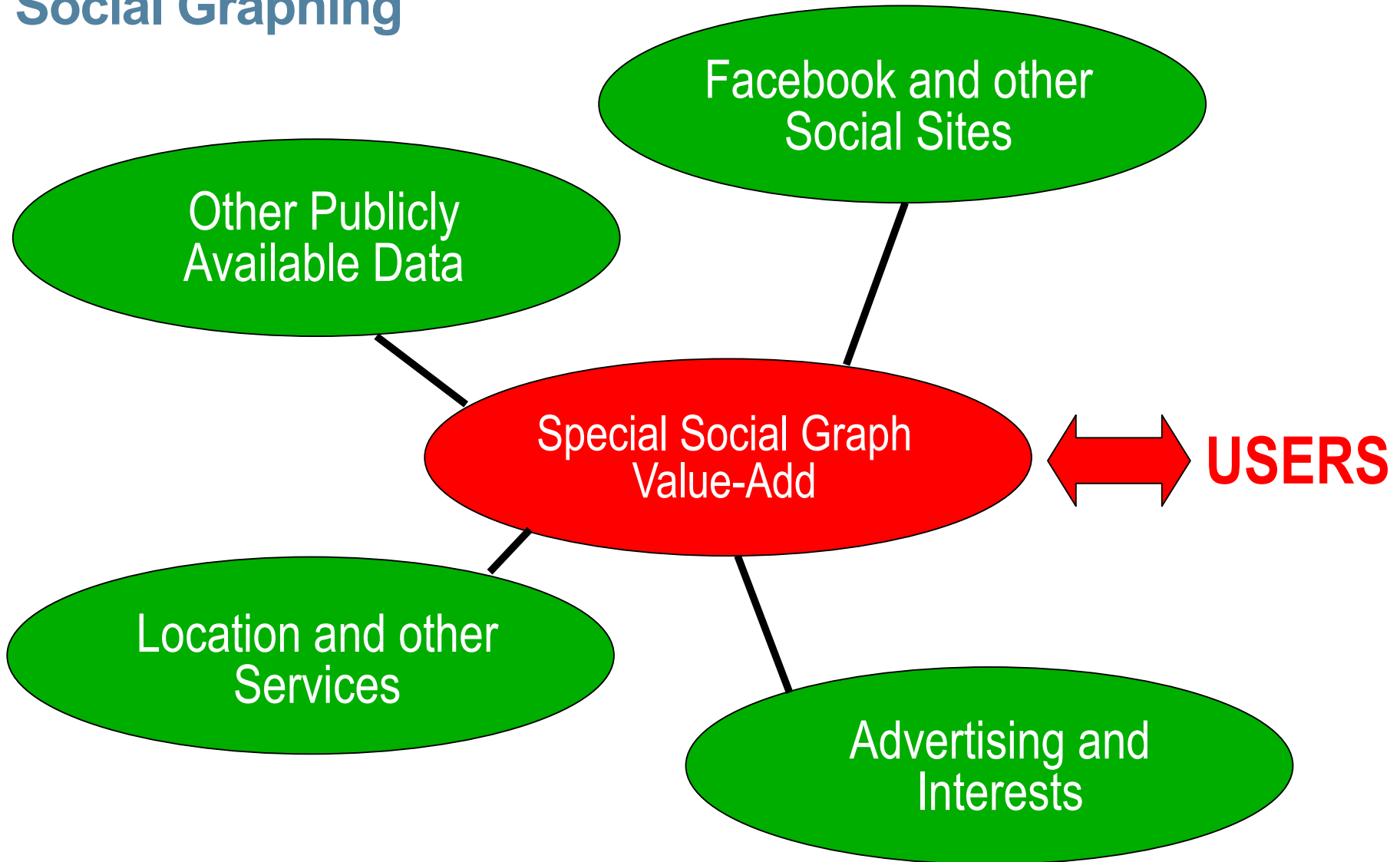
New York Times



- Massive data archives
 - > Every newspaper from 1851 to 1922
 - > <http://timesmachine.nytimes.com>
- Utilizes Amazon Web Services (public cloud) and Hadoop (OpenSolaris)
- 405,000 very large TIFF images, 3.3 million articles in SGML and 405,000 xml files
 - > converted to a more web-friendly 810,000 PNG images and 405,000 JavaScript files
- approx 36 hours of effort

Hybrid Cloud Example

Social Graphing

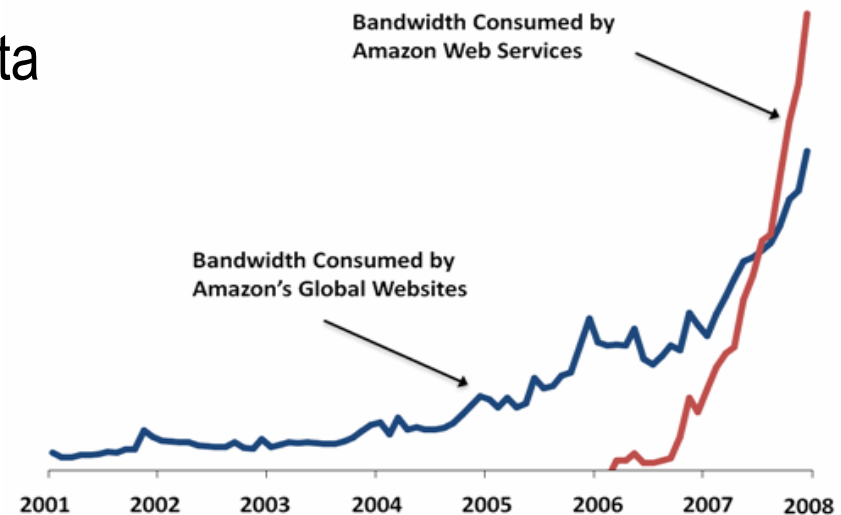


Huge Trend: Analytics

- Defn: Fact-based management to drive decisions & actions
- Traditional Analytics are reaching the breaking point
 - > data volume: slow load and transport of tera-, peta- and exa-scale
 - > data agility: difficult to incorporate external data or leverage new/open approaches to network-scale worksets
 - > historical compute results: often can't deliver forward-looking, continuous, or real-time info
- Disruptive Analytics
 - > You want this problem!!!
 - > out-strategize and out-excute: do with less resistance what competitors and startups are struggling to achieve
 - > available tools and open methods enable small groups to disrupt entire established markets

Disruptive Analytics

- The desire to access and leverage what you'd prefer to use, rather than settle for what you have been using
 - > data & oppty available for those who can do this well
 - Filter and Triger
 - Mine through unstructured data
 - Track and Sort and Notice
 - Aggregate and Analyze
 - Predict and Price
 - Visualize



- Note: the tera->peta transition for data handling & analysis was not as disruptive as the peta->exa transition will be

Everything's Changed, Nothing's Different

How does your initiative leverage disruption & bring value to the Enterprise?

Economics



- Pay as-you-go
- Op-ex vs. Cap-ex
 - SLA
- Virtualization

Developer Centric



- Rapid,
self provisioning
- Faster deployment
 - Self service
 - API-driven

Flexibility



- Standard services
 - Elastic
- On demand
- Multi-tenant

Our Journey this afternoon:

- Cloud Computing: for Business
- Get on the Same Page: Layers / Models / Domains
- Public / Private / Hybrid Examples
- Disruptive Analytics



THANK YOU

scott.radeztsky@sun.com

www.sun.com/cloud

THE NETWORK
is the ~~the~~ **YOUR**
Computer