

## Mining the Silver Lining Of the Cloud

Joe Weinman  
Hewlett-Packard



# Service Provider Challenges

- Revenue Growth, Time to Market

- Cost Management, Agility

## SERVICES

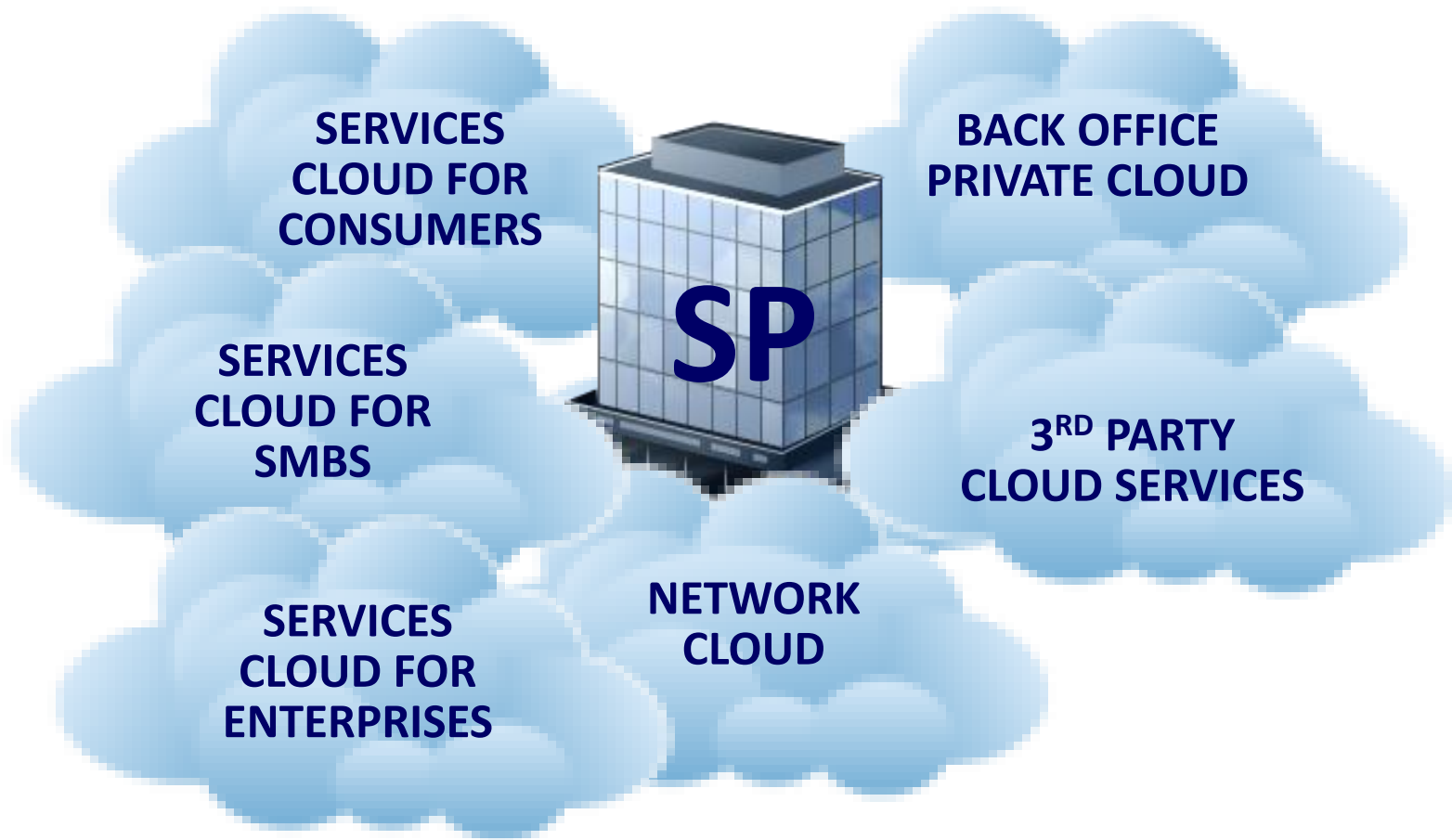
## BACK OFFICE



- Traffic Growth, CapEx

- ## INDUSTRY
- Competition
  - Regulatory

# Multiple Applications



# WHAT IS A CLOUD?



## **Services**

- + Resources (Servers, Storage, Networks)
- + Content + Data + Entertainment

## **Accessed via a Browser**

- + App + Mobile Device/OS
- + Voice Endpoint + Video Endpoint
- + Sensor + Actuator
- + Server + Storage

## **Over the Internet**

- + Intranet + Extranet + 3G/4G + MPLS/VPLS + Photonic Mesh

# PROVABLY CORRECT



*All other things being equal:*

1. If cloud services cost **less** than enterprise IT, then...

...use them

2. If cloud services cost **more** than enterprise IT, then...

...don't...

...jump to conclusions, because if demand is “spikier” than the cloud is “costly,” a pure cloud solution will cost less than a dedicated one

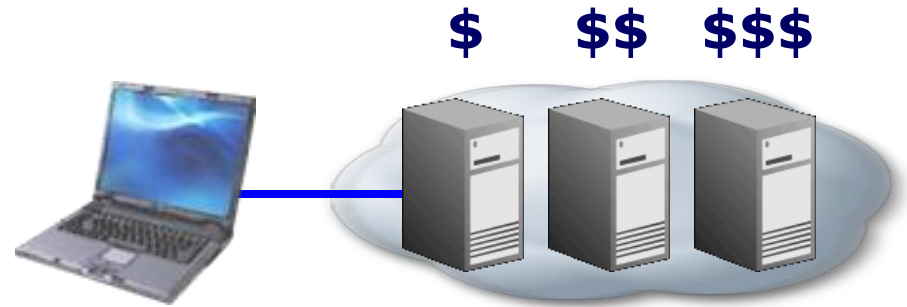
3. If demand has any variation, a hybrid solution is optimal

Joe Weinman, “Time to Do the Math on Cloud Computing,” InformationWeek.com, and  
“Mathematical Proof of the Inevitability of Cloud Computing.”

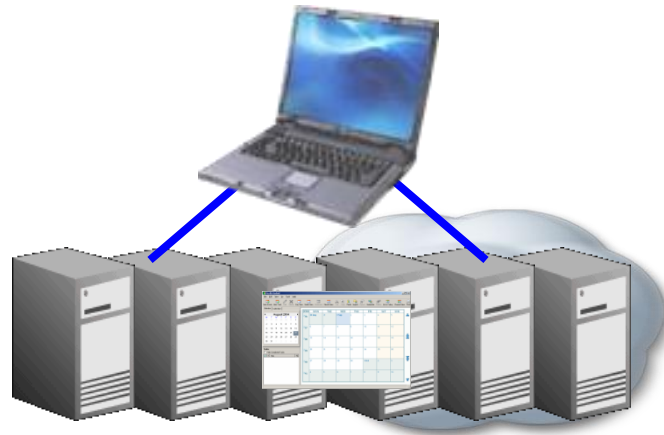
# EXAMPLE PATTERNS



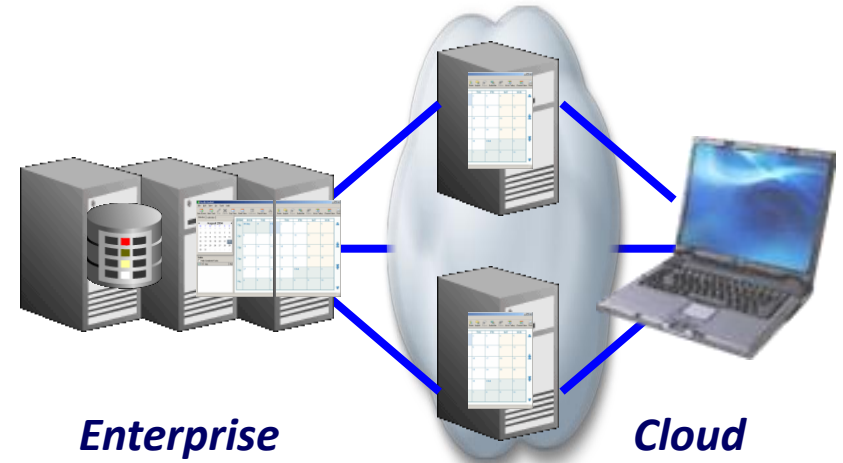
**Pure Utility Cloud**



**Mixed-Rate Hosting/Cloud**

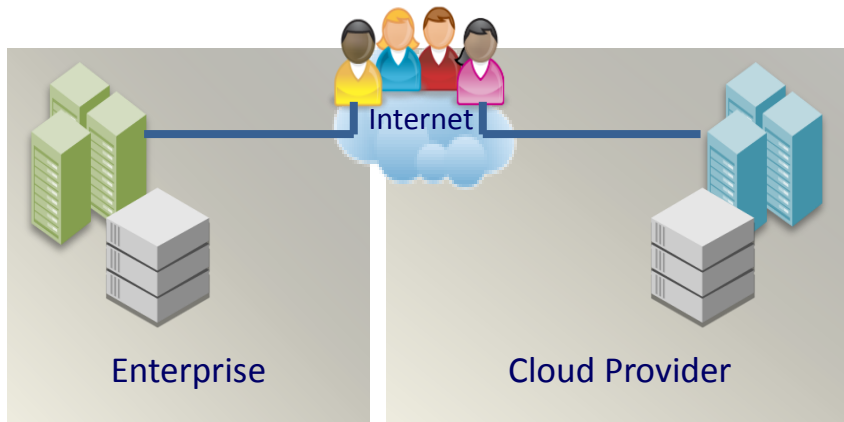


**Enterprise**      **Cloud**  
**Cloudbursting**

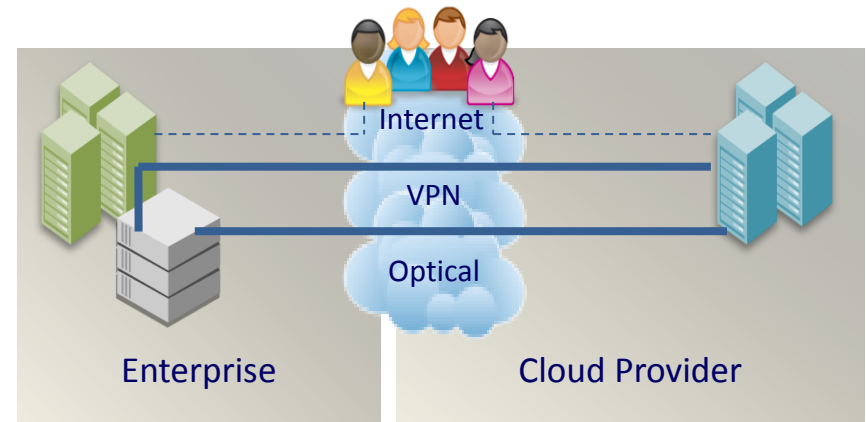


**Enterprise**      **Cloud**  
**Front-End / Back-End**

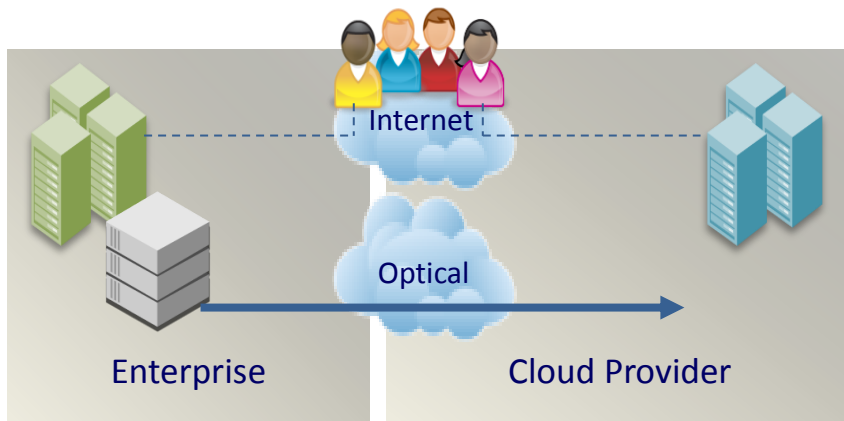
# CLOUDBURST ARCHITECTURES



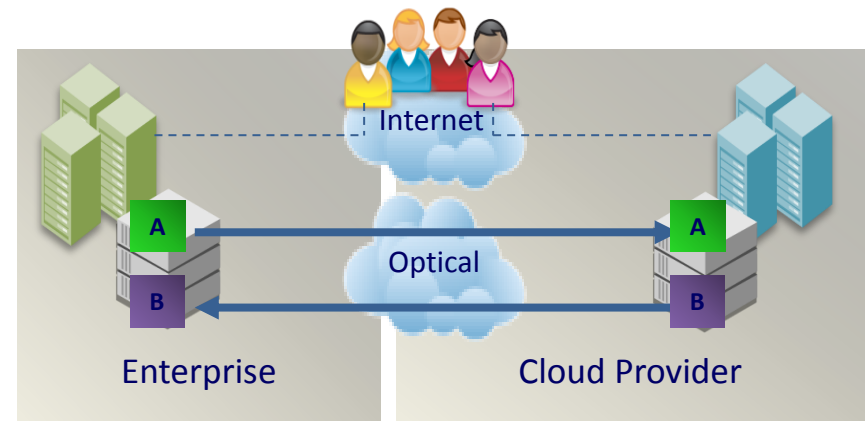
Non-Persistent Session Data



Remote Access



Dynamic Migration



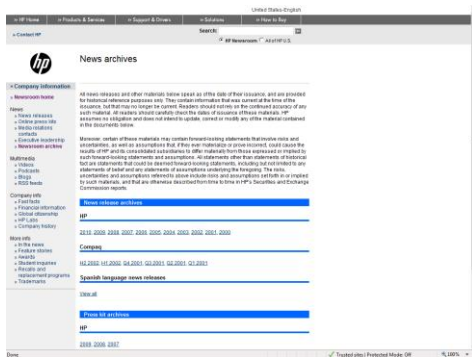
Coherent

Source: Joe Weinman, "4 ½ Ways to Deal with Data During Cloudbursts," GigaOM.com

# EVOLUTION OF "SAAS"



BANDWIDTH



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INTERACTIVITY

# SUMMARY



- Endpoints > Browsers  $\Rightarrow$  Cloud Net >> Internet
- Carrier-Grade VPNs for Video, Data-Intensity
- QoS for Video
- Optimized Routing for Latency
- Dispersed, On-Net Processing Facilities
- Bandwidth on Demand
- Billing / OSS Integration
- Services / IT / Network Convergence

# From Bits to Data, from Pipes to Clouds

*The network as an asset for convergence of Telecoms, IT and Media into an Internet of Knowledge*



4-7 October 2011, Berlin, Germany

## Thank You

Joe Weinman

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