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EDA and Cloud Computing

ELECTRONIC DESIGN
PROCESSES (EDP) 2010
SYMPOSIUM WORKSHOP

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Alluring Math of Cloud Computing

The New York Times

- 4 terabyte archive with 11M docs to convert to PDF
- Harnessed 100 virtual servers at a cloud provider
- Converted the catalog in 24 hours of compute time
- Total cost for computing? $240

Doing More with Less

The Cloud Hype-Cycle
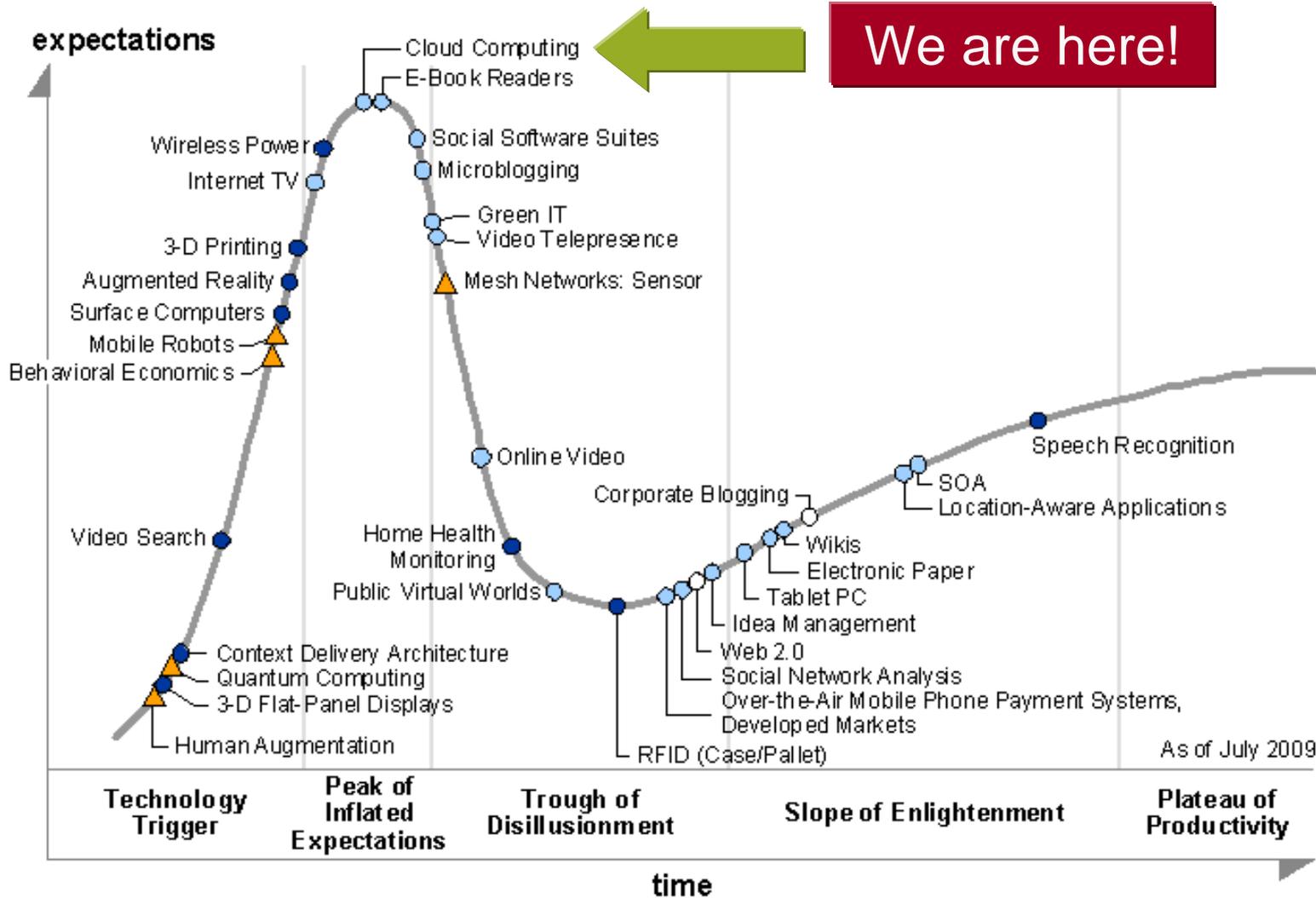
Source: Gartner (August 2009)

FUD Factor
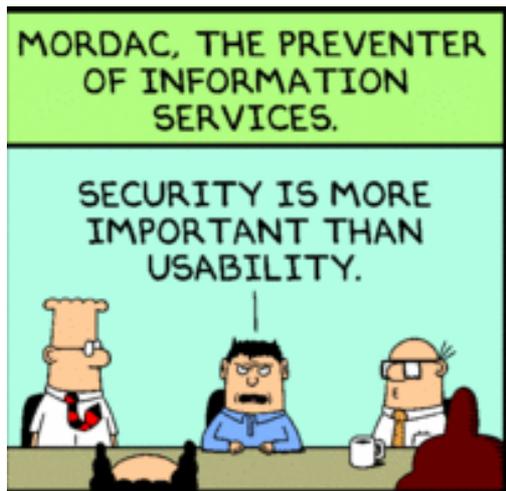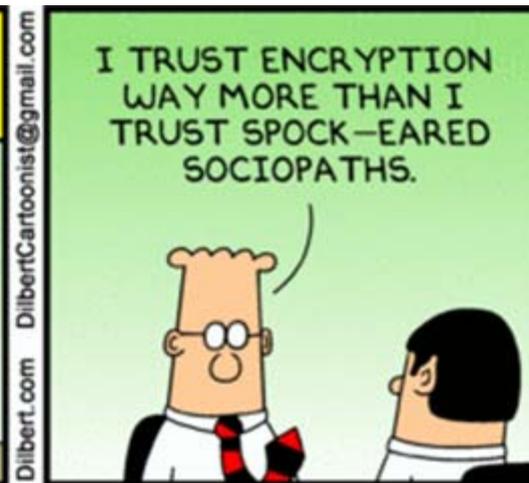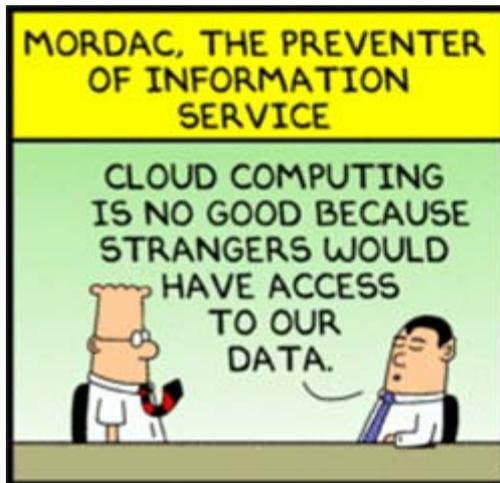
Practical Problems to Solve

EDA Vendor

Globalization

Cost of Sales

Pre/Post-Sales Support Costs

Cloud Computing

IDM

Data Center Growth

Hardware Costs

Software IT Costs
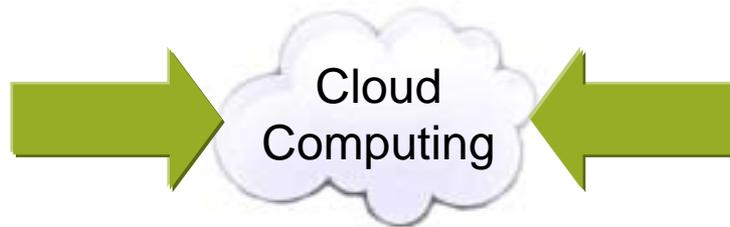
The Cloud Computing Stack

|		
Software-as-a-Service (SaaS)	Software User Interface	salesforce.com, Quicken ONLINE, GMail by Google
Platform-as-a-Service (PaaS)	Platform Specific IDE & Services	Azure, force.com platform as a service, Google App Engine
Infrastructure-as-a-Service (IaaS)	Virtualized Remote Compute Resources	GOGRID, amazon web services

Everything above IaaS is a "re-write"

Infrastructure-as-a-Service

Need to convert IaaS into a Platform to Scale
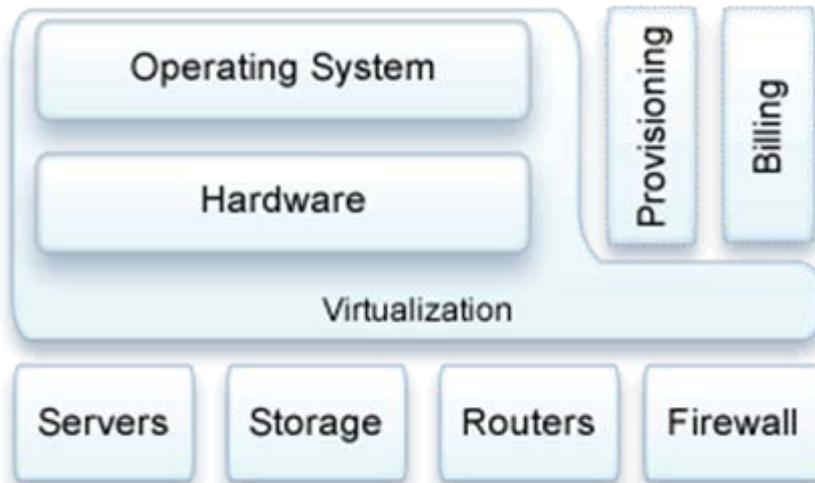
- Scale users?
- Provisioning Automation?
- License Management?
- Access control?
- Access security?
- Client-side installs?
- Server-side installs?
- Collaboration tools?
- User management tools?
- Cloud portability?
- Instance management?
- IT overhead?

Xuropa Platform

Key: Xuropa | Non-Xuropa

Secure & Scalable Platform
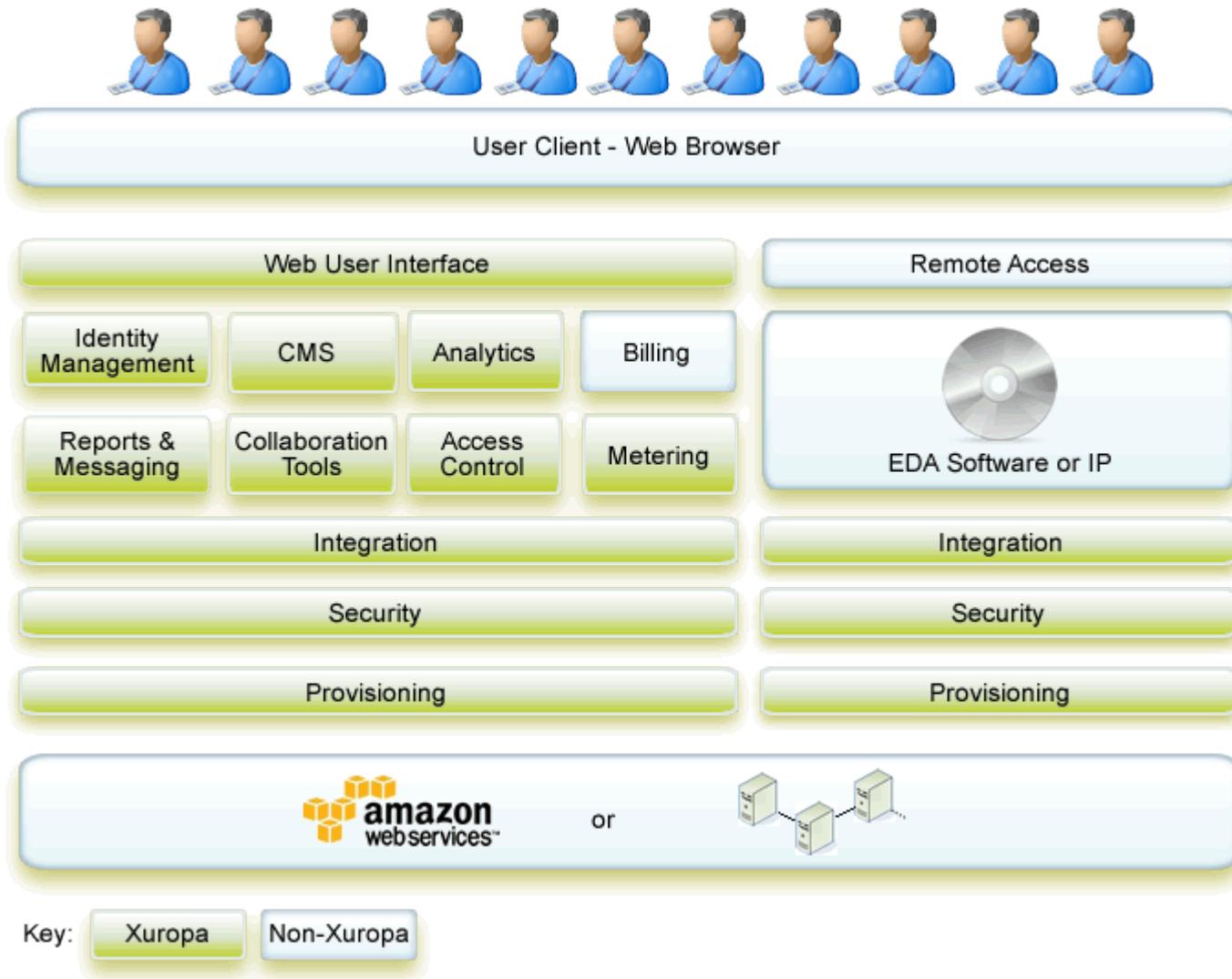
- Per Session Secure Access & Encryption

- FlexLM License Management

- Zero IT overhead

- Automated Provisioning & Scalability

- Cloud portability

- No client-side installs

- Collaboration tools

- Management tools

# Access & Management Overview

Use Models
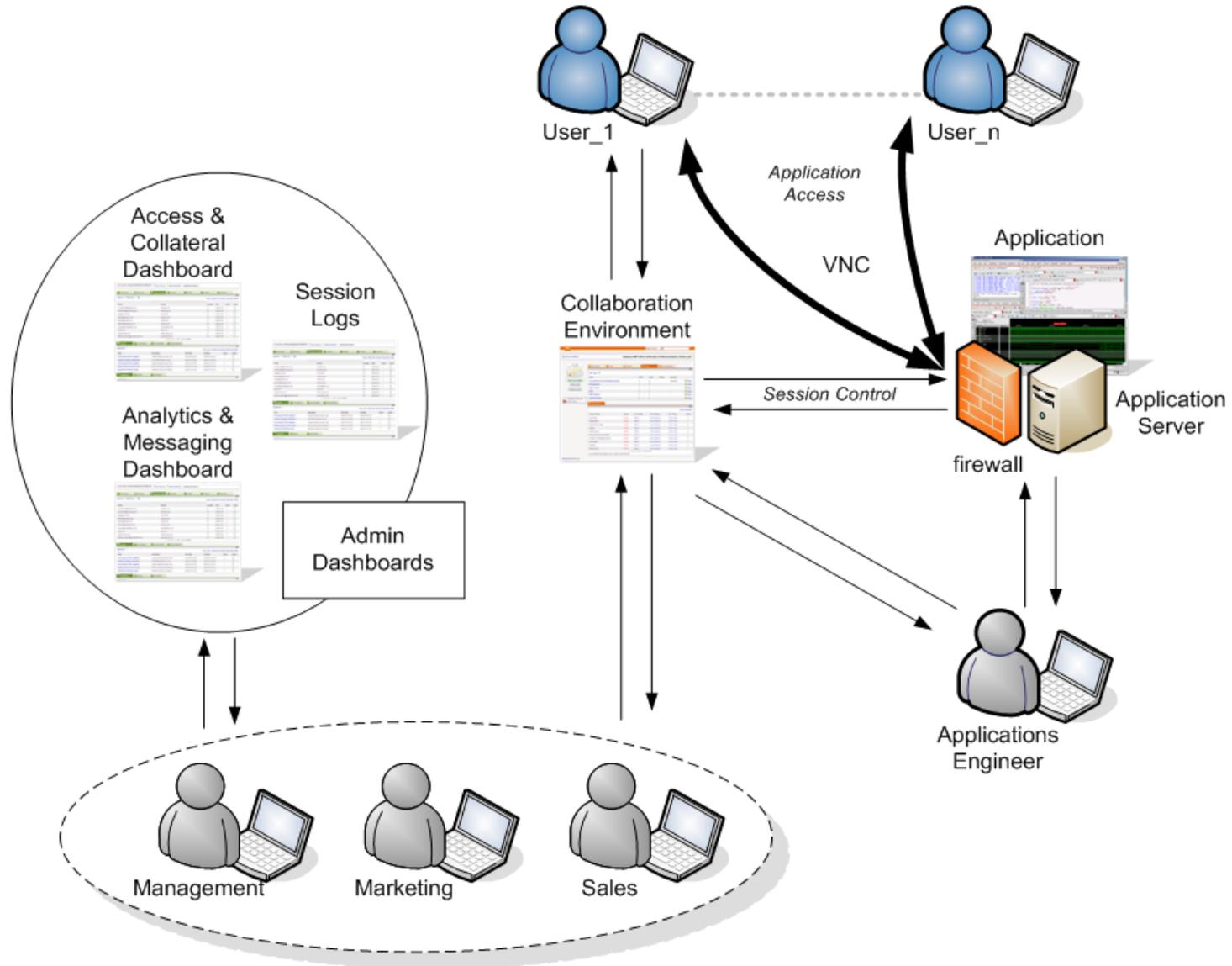
cādence™

- Incisive Enterprise Simulator
- Incisive Enterprise Manager
- >40 Verification IP
- Verification Workshops

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SaaS

IP Distribution

Beta Testing & Focus Groups

Partner Collaboration

Development

Workshops & Training

Evaluations

Hands-on Demo

Enterprise Software

Cloud Migration

Project Considerations

Strategic IP

Commodity

Single User

Large Dispersed Teams

Usage Model

Bursty

Steady

Low Compute

High Compute
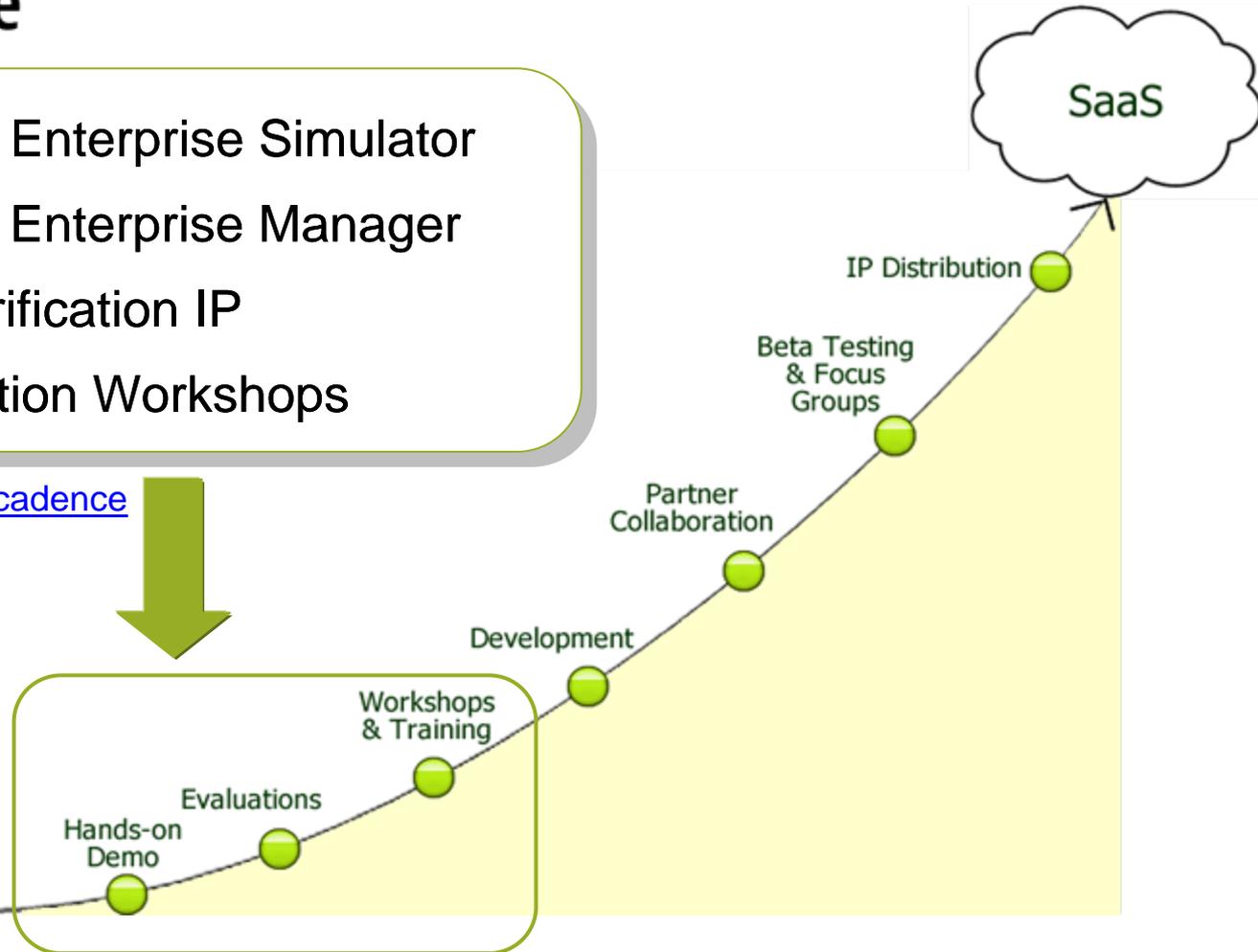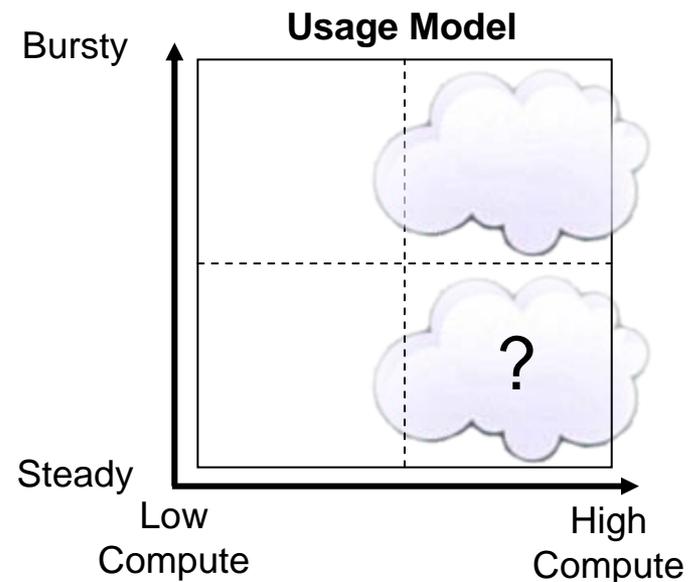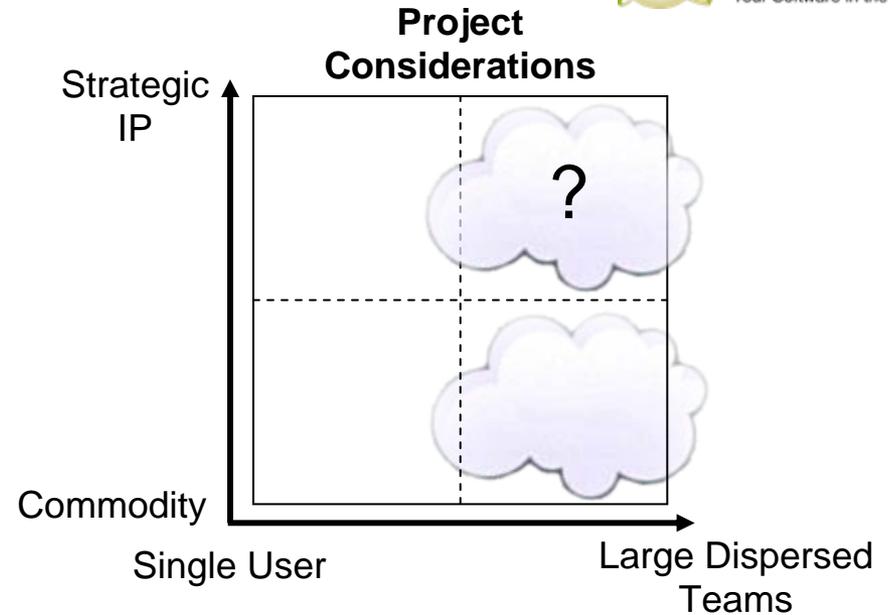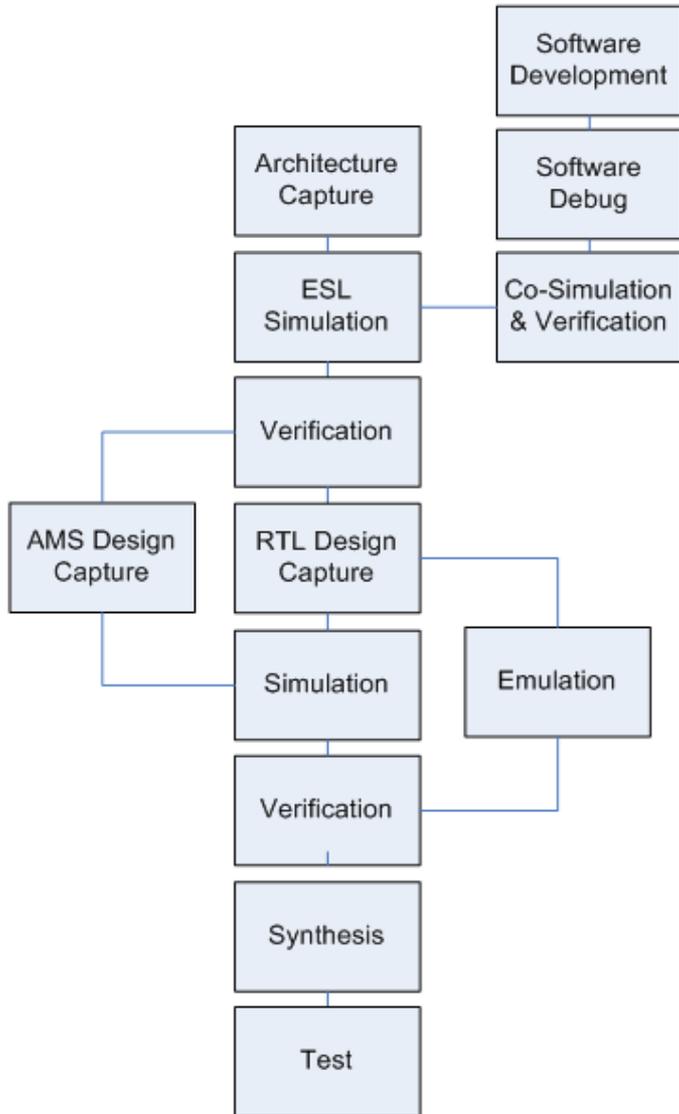
Measured Adoption of Hybrid Model

Cloud Conclusions
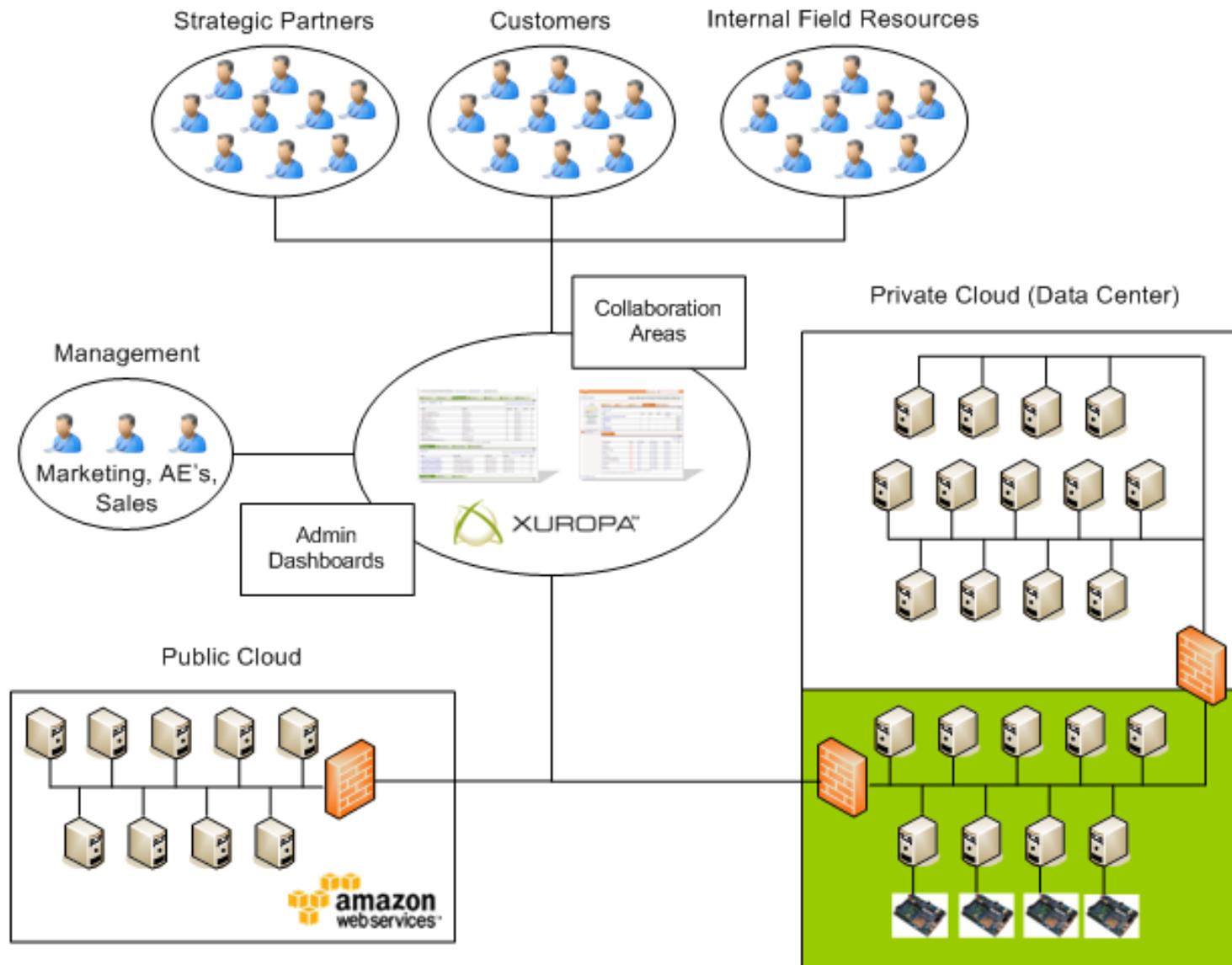
- ## Addresses big Electronic Design problems
  - – Value and Costs

- ## Cloud competition good
  - – Scale, TCO, and security

- ## Electronic Design specific requirements
  - – License management & performance

- ## Xuropa provides the platform
  - – Scale with zero IT overhead

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Secure & Scalable Platform (Detail)

- **Secure access**
  - Unique username/password per user per session
  - Session password locked to user IP address
  - Encrypted, robust, & decoupled upload and download
- **License management**
  - FlexLM (or similar) supported
  - License isolated from application server
- **Zero IT overhead**
  - AE installs software as if local
  - Sales and marketing professionals manage
- **Provisioning automated**
  - Server, OS, and tools and IP On-Demand
  - Cleaning of instance in-between sessions
- **Scales**
  - Single targeted user or entire market of users

Easy to Use and Manage (Detail)

- Cloud portability
  - AWS or internal data center
- Server instances and resources
  - Managed & automated
- Images and provisioning
  - Managed & automated
- No client-side installs
  - Session virtualization JVM
- Collaboration tools
  - Repository, forum, IM Chat, and more
- Management tools
  - Access control, analytics, and content

Conclusions (Detail)

- Cloud addresses big Electronic Design problems
  - Reduction in sales costs
  - Reduction in TCO
  - Delivery of greater value to IDMs
- Cloud competition good
  - Driving down TCO through economies of scale
  - Competing on infrastructure functionality
  - Security is cost of entry
- Electronic design has specific requirements
  - License management
  - Server and VM demands are high
- Xuropa provides the platform
  - Step-by-step transition in line with business objectives
  - Scale with zero IT overhead