University of Tokyo Java Class
September 22-26, 2003
Java Technology Overview

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Agenda

Introductions

Class Goals

Schedule for the Week

Java Technology Overview

Lecturers

Dr. Tony Printezis, tony.printezis@sun.com
- Sun Microsystems Labs

Dr. Arnie Kaber, arnie.kaber@sun.com
- Chief Technologist, Sun Microsystems Global Technology and Solutions Organization

Dr. Simon See, simon.see@sun.com
- Director, Sun Asia Pacific Science and Technology Center
- Adjunct professor, NTU Singapore

Keith Hazelton, hazelton@doit.wisc.edu
- University of Wisconsin

Marc Hamilton, marc.hamilton@sun.com
- Director of Technology, Sun Microsystems Global Education and Research

Class Goals

Provide Java programmers a broad overview of all Sun's Java systems

Introduce latest Java language developments planned for future releases

Understand how to improve performance using Java HotSpot Garbage Collector and SPARC CPU optimizations

Survey hotest Java trends for mobile devices, gaming, and more

Learn about Network Identity infrastructure and standards for Java programs

Class Schedule

Monday:
- Java Systems Overview
- Java HotSpot Garbage Collection

Wednesday:
- Java for mobile devices and gaming
- Java 1.5 planned new language features

Thursday:
- High Performance Computing and the Grid
- SPARC optimizations and roadmap

Friday:
- Network Identity Systems and Standards

Sun EduSoft Portfolio

Enables access to all Sun software for academic and research use, signup at
http://www.sun.com/edu/edusoft

No-cost downloads of over 40 products

Schools can order media kit of over 100 products

Register for free web training at
http://www.sunacademic.com

Vision

Everything and Everybody Connected to the Network

Proliferation of the Network

An Internet of Computers

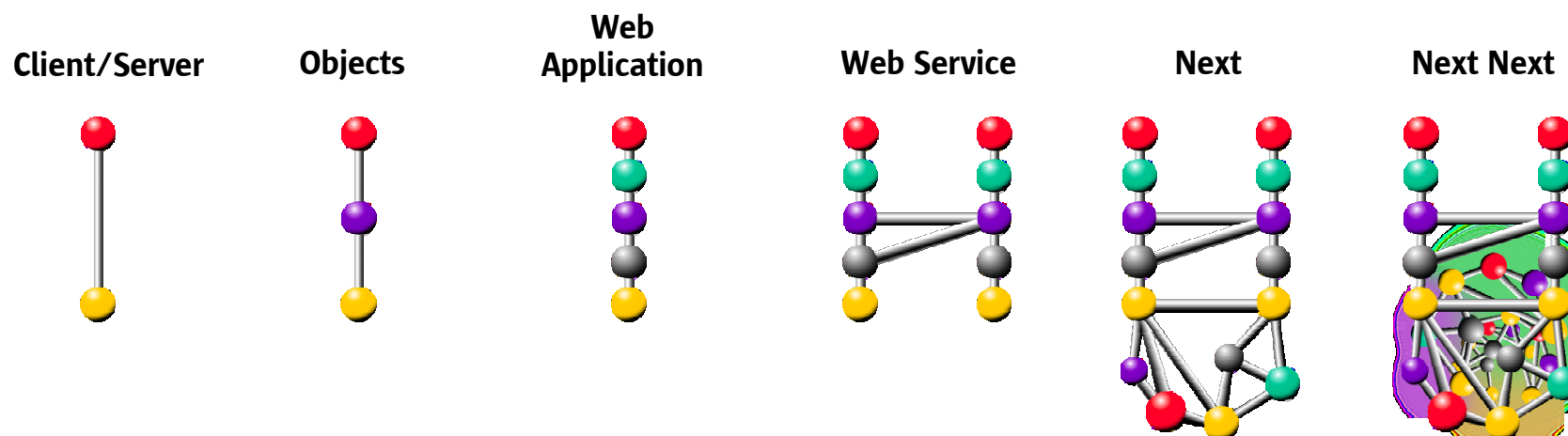**An Internet of Things That Embed Computers**

An Internet of Things

10^8

10^{11}

10^{14}
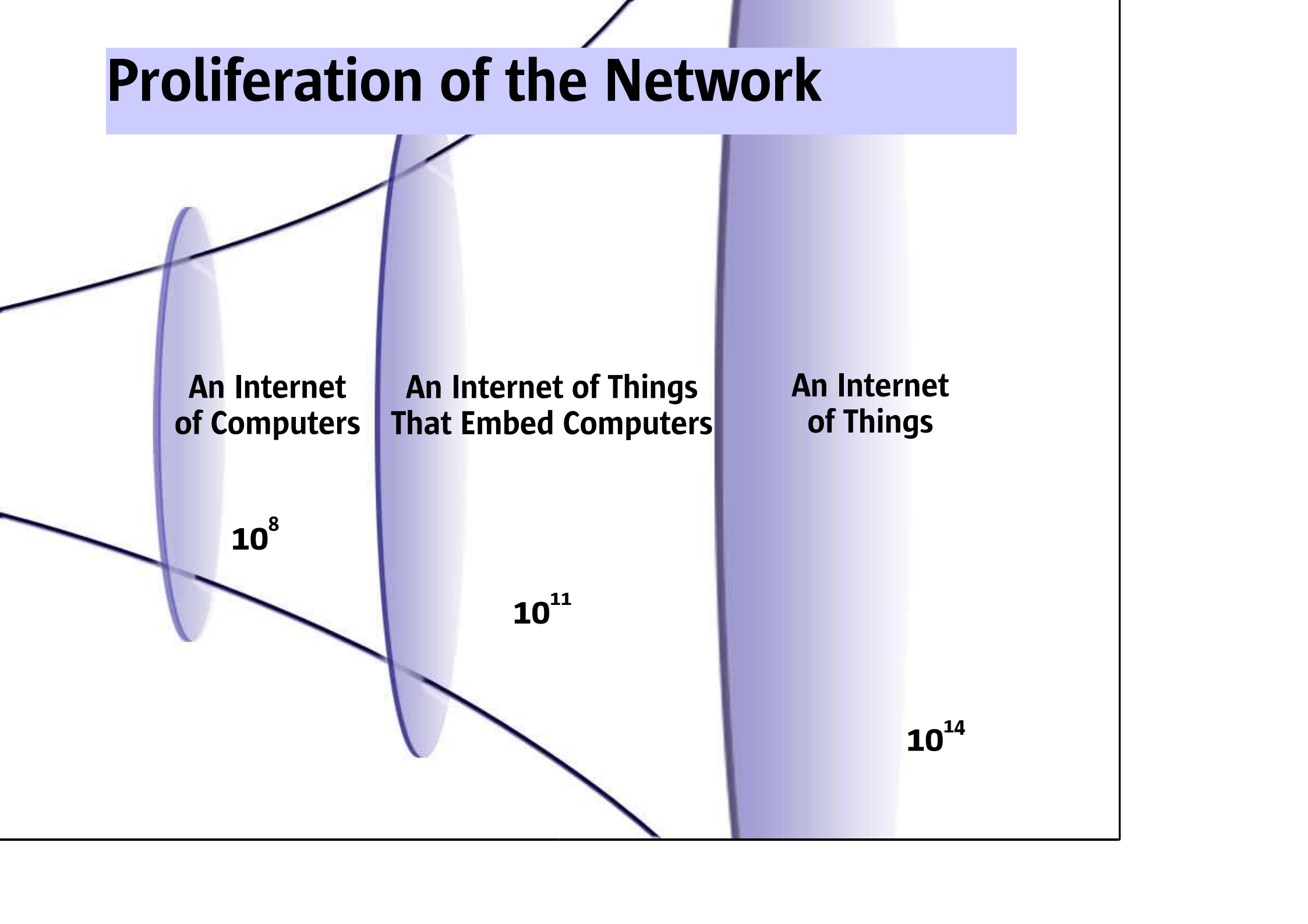
Applications Becoming Graphs

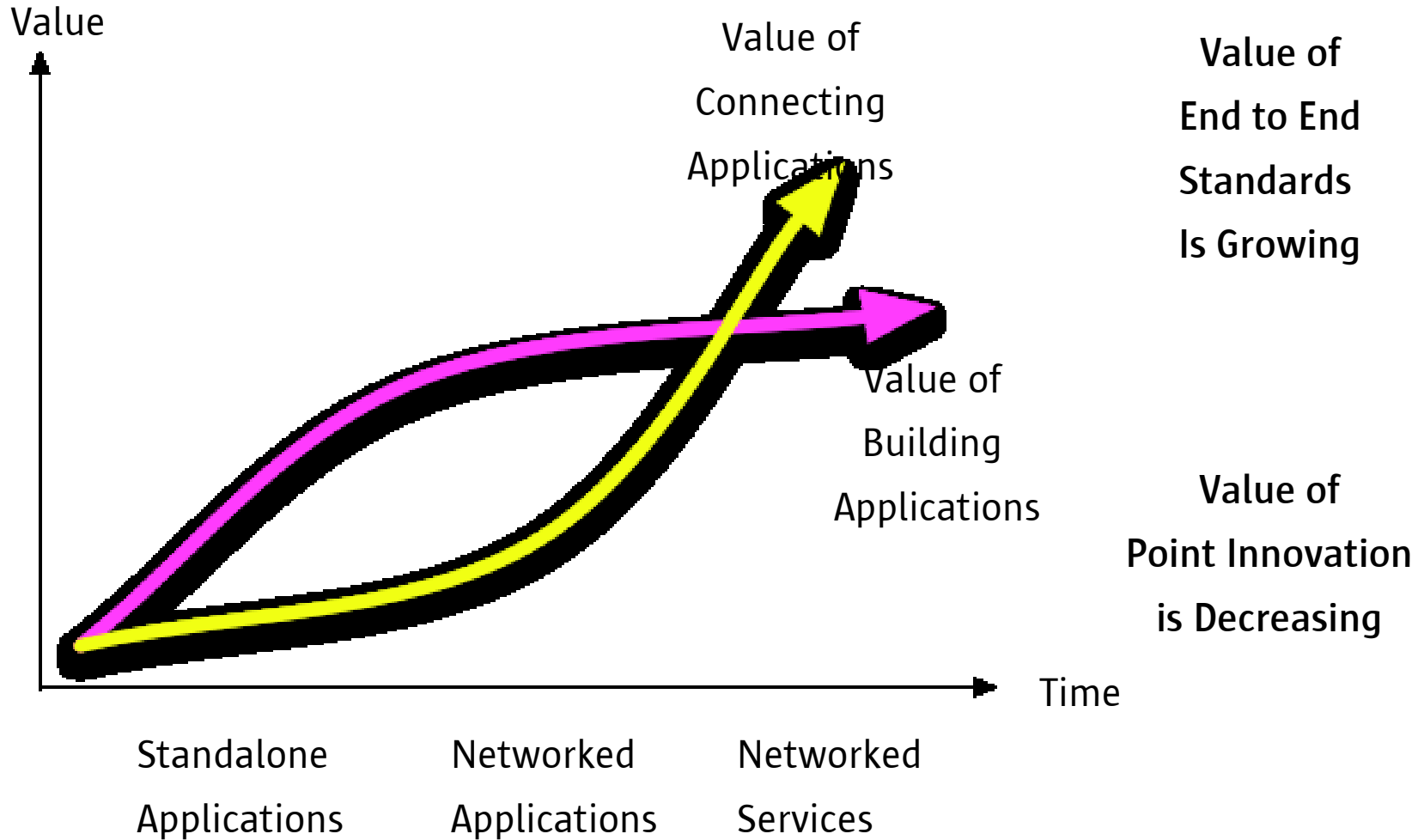| Client/Server	Objects	Web Application	Web Service	Next	Next Next

Network Issues

Not reliable or secure

Latency never zero
bandwidth not infinite

Topology changes & not
homogeneous

Many (or no) administrators

Graph Issues

Application factoring
into components

Component placement
on network, firewall, client...

Cost of connections

Scale/density of graph

An End to End View is Critical

Value

Value of
Connecting
Applications

**Value of
End to End
Standards
Is Growing**

Value of
Building
Applications

**Value of
Point Innovation
is Decreasing**

Time

Standalone
Applications

Networked
Applications

Networked
Services

Java 2 Platform

Java 2 Enterprise

Java 2 Standard Edition

Java 2 Micro Edition

Java Platform

Hot Spot	Classic VM	KVM	Card VM

Memory:

Operating System:

Next Generation Requirements

Scale to billions of devices/users

Continuous availability: always on, multiple channels

Policy for allocating resources

Security, trust, privacy relative to "real world"

Technology Trends

1. Utility model impact on application design & architecture
2. 802.11{a,b,g} as air interface
3. Digital Rights Management (DRM) as rules for enterprise data
4. Cheap sensors, including AutoID and cameras
5. Digitization drives storage, including content networking
6. "Old school" transactions & reliability re-emerge
7. "Grid" model applied in control & monitoring
8. Trust, privacy and threat models shape deployments

Network Computing

Three Core Strategies:
1. Reduce Cost and Complexity
2. Speed time to service
3. Unleash Mobility with Security

Critical Enablers

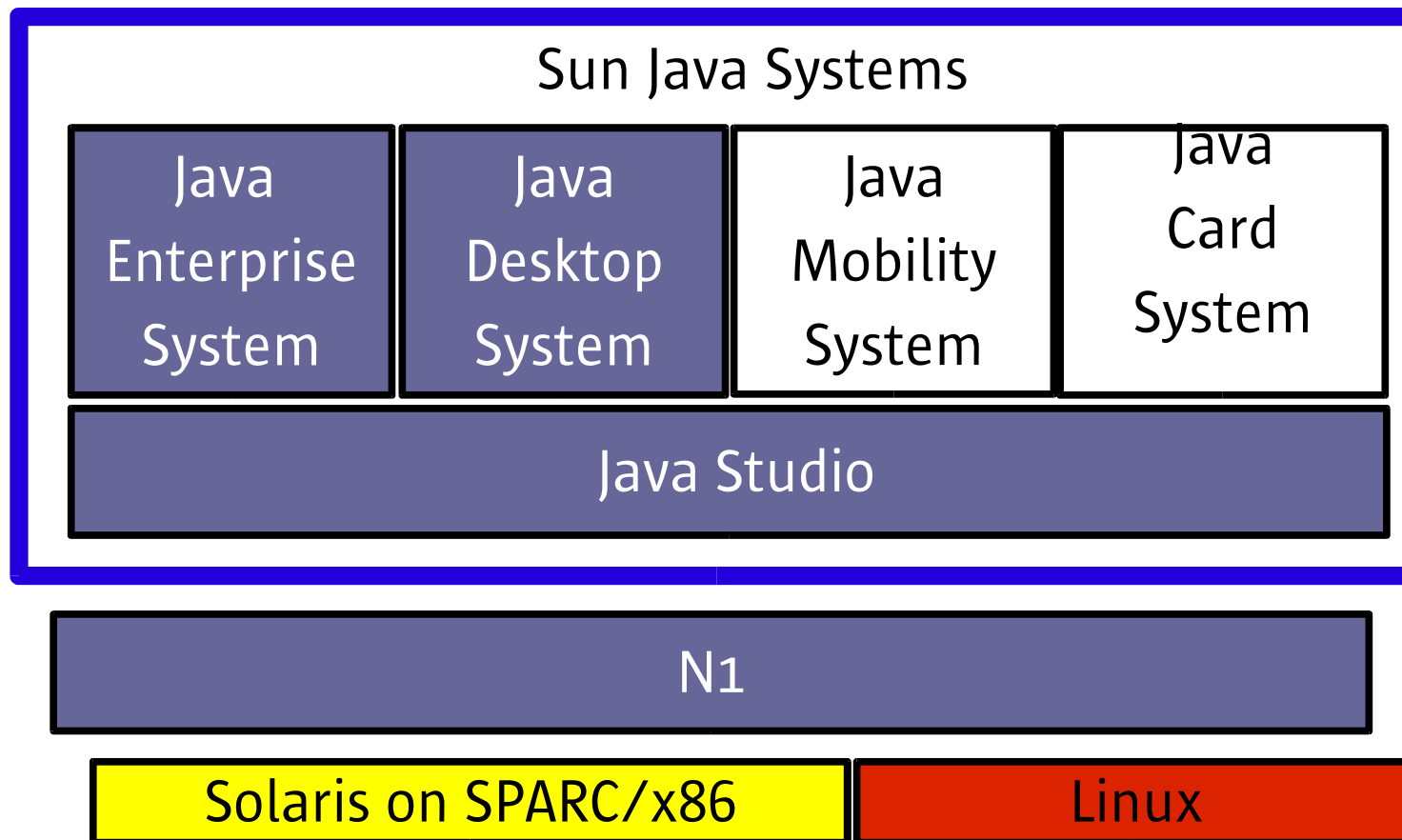**Reduce Cost & Complexity**

Speed Time To Service

Unleash Mobility with Security

1. **Identity & Security Are fundamental (Liberty)**
2. **The Personal Network   (Java card, Portals, Directory...)**
3. **End to end developer platform (Java Services, tools,community)**
4. **A new network services delivery platform (Java Enterprise System)**
5. **The Dynamically provisioned Data center (N1)**

Sun's Software Systems

A new family of Software Systems designed to deliver simplicity, predictability and affordability

Sun Java Systems			
Java Enterprise System	Java Desktop System	Java Mobility System	Java Card System
Java Studio			

N1

Solaris on SPARC/x86 | Linux

Sun Developer Network
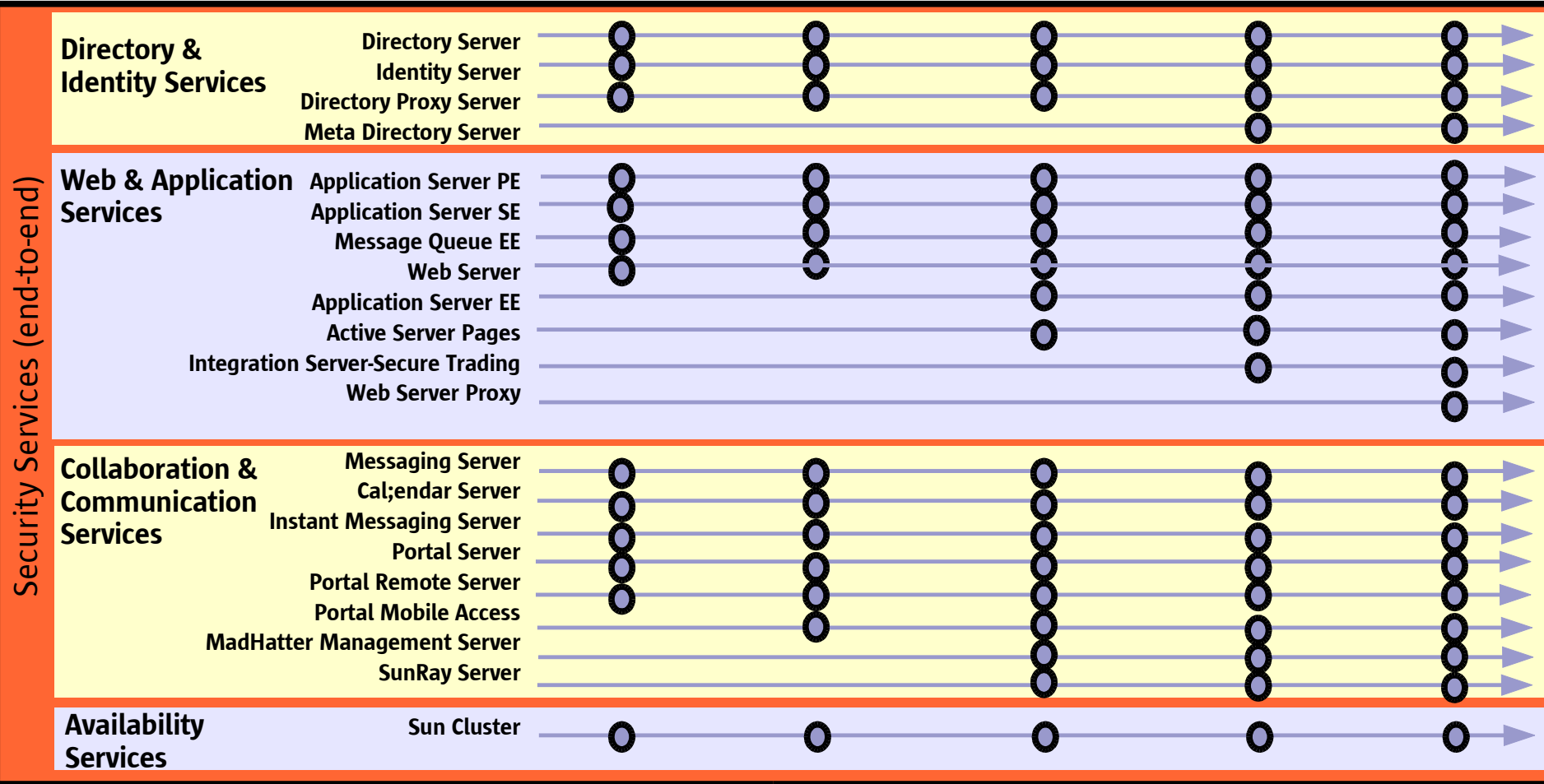
Introducing The Sun Java System
Serious Software Made Simple

New! Java Enterprise System – (Project Orion)

New! Java Desktop System – (Project Mad Hatter)

New! Java Developer Studio – (Project Orion/Developer)

Enahanced! Portal, Identity, Mail, Calendar and Instant Messaging servers, Sun Cluster 3.1, Application Server 7.0 EE as part of Java Enterprise System

Enhanced! SunRay

New! N1 application provisioning – CenterRun Acquisition

ñ Expanded! of N1 services and Centers of Excellence

New! Solaris and Software Express to speed innovation to customers

New! StarOffice 7.0

New! ISV certification and branding program for Java Desktop

Java Enterprise System Roadmap
Leveraging The Solaris Experience

		Release 1	Release 2	Release 3	Release 4	Release 5
Directory & Identity Services	Directory Server	●	●	●	●	●
	Identity Server	●	●	●	●	●
	Directory Proxy Server	●	●	●	●	●
	Meta Directory Server				●	●
Web & Application Services	Application Server PE	●	●	●	●	●
	Application Server SE	●	●	●	●	●
	Message Queue EE	●	●	●	●	●
	Web Server	●	●	●	●	●
	Application Server EE			●	●	●
	Active Server Pages			●	●	●
	Integration Server-Secure Trading				●	●
	Web Server Proxy					●
Collaboration & Communication Services	Messaging Server	●	●	●	●	●
	Cal;endar Server	●	●	●	●	●
	Instant Messaging Server	●	●	●	●	●
	Portal Server	●	●	●	●	●
	Portal Remote Server	●	●	●	●	●
	Portal Mobile Access	●	●	●	●	●
	MadHatter Management Server			●	●	●
	SunRay Server			●	●	●
Availability Services	Sun Cluster	●	●	●	●	●

Security Services (end-to-end)

Network Services Roadmap Subject To Change

Sun Java Studio

Integrated

Complete

End to End

Integrated Tools

Studio

Connector Builder

Portlet Builder

Application Framework

App Server plug-in

Web server plug-in
SDKs

Integrated Enterprise Software System

Java Enterprise System
  runtime included
-Directory/Identity/Portal
-Web & Application Servers
-Message Queue
-Messaging, IM, Calendar
-Cluster
+ EAI Integration (co-pkg)

Developer-optimized experience

Common, Simple, Installer
Express configuration
End-end reference application
Code samples
Consistent API documentation
Getting Started Guide

Developer Services

Developer Portal
e-mail support
managed forums
Knowledge base
web chats
web casts
premium content
Maintenance
Updates

Solaris Next Generation

Trusted Containers

Blackbox "flight recorder"

Trusted Filesystems

FMA: Fault management Architecture

Security in the DNA

Proven Security Features

Solaris Secure Shell - interactive sessions with the Solaris OE are encrypted and strongly authenticated

Ipsec and IKE – 128 bit encryption by default

Kerberos v5 server as the principal administration system

Sunscreen 32. firewall, and much more....

Lab Assignment

Download and install Star Suite from
http://www.sun.com/edu/edusoft
Class presentations will be distributed in Star Suite format only

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