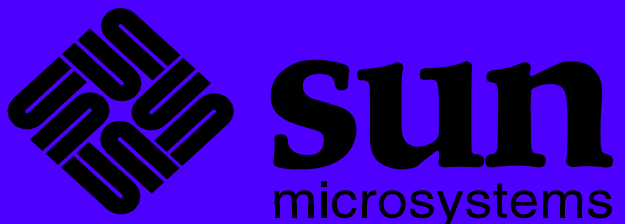
Java
Vision and Strategy

Geoffrey Baehr
Chief Network Officer



The Presentation

- History of Java
- History of the Internet
- Java Properties
- How Java changes everything
- What it means to
  - Engineers
  - IS Executives
  - Intranetworkers

History of Java

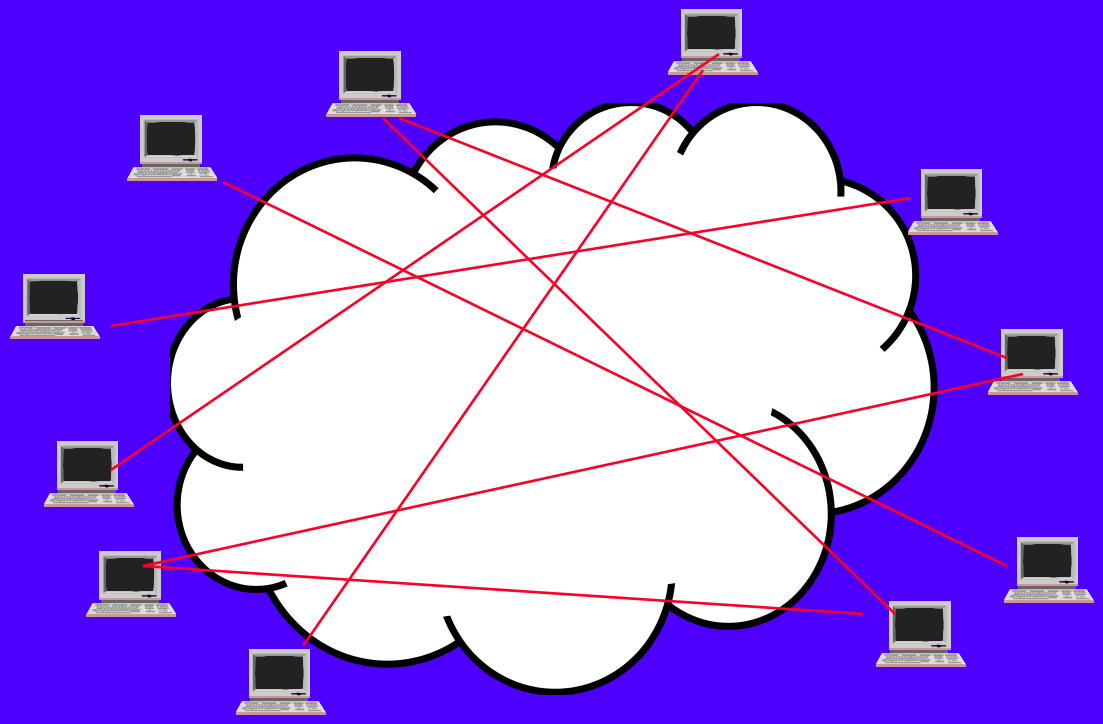
- The 'Green' Project -1992
  - 4 Wild and Crazy guys
  - "Let's make set top boxes for Video on Demand ! Cool!"
- Characteristics of Set Top boxes:
  - Tiny memory, tiny price, static functionality

History of Java

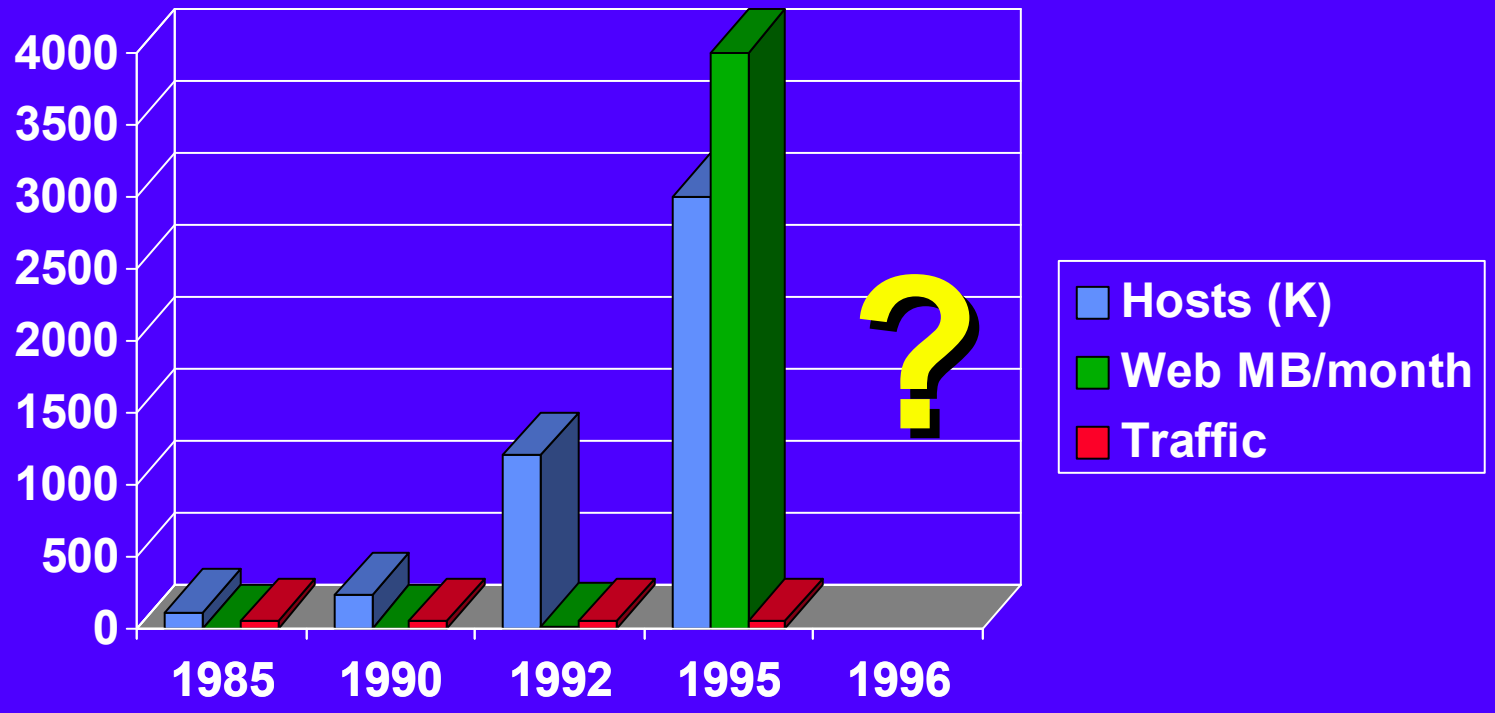
- Developed a constraint driven Set Top O/S
  - Small memory footprint
  - Secure
  - Downloadable code
- Video on Demand never happened
- The Net happened instead ...

History of the Internet

- DARPA Project for command and control in case of nuclear war.
- Heterogeneous



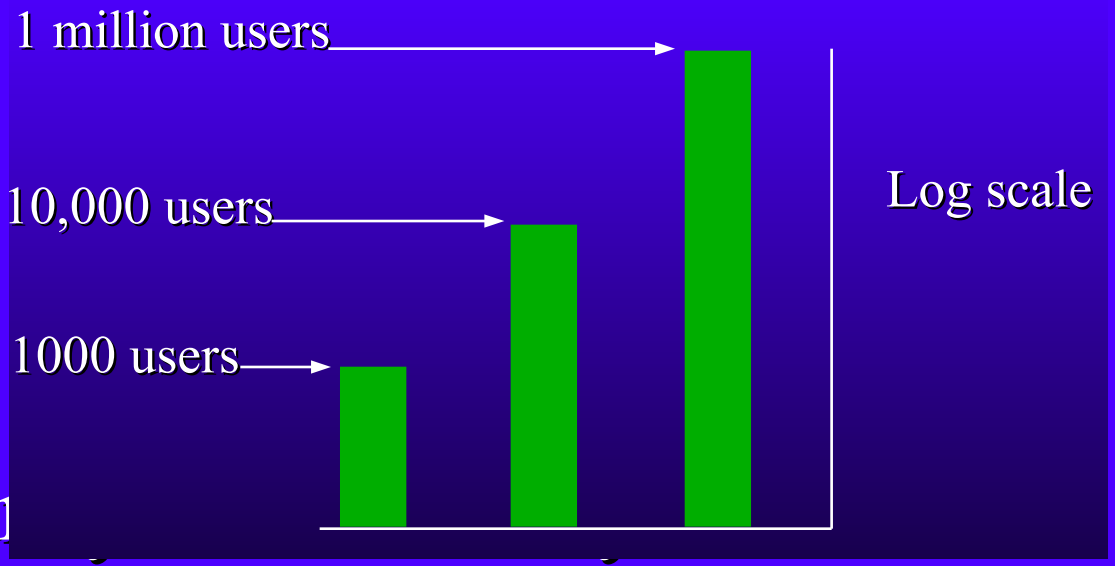
Growth of the Net Implied it's Own Problems



At current growth rates,every human will have a connection by 2003

History of the Network

- Scaling



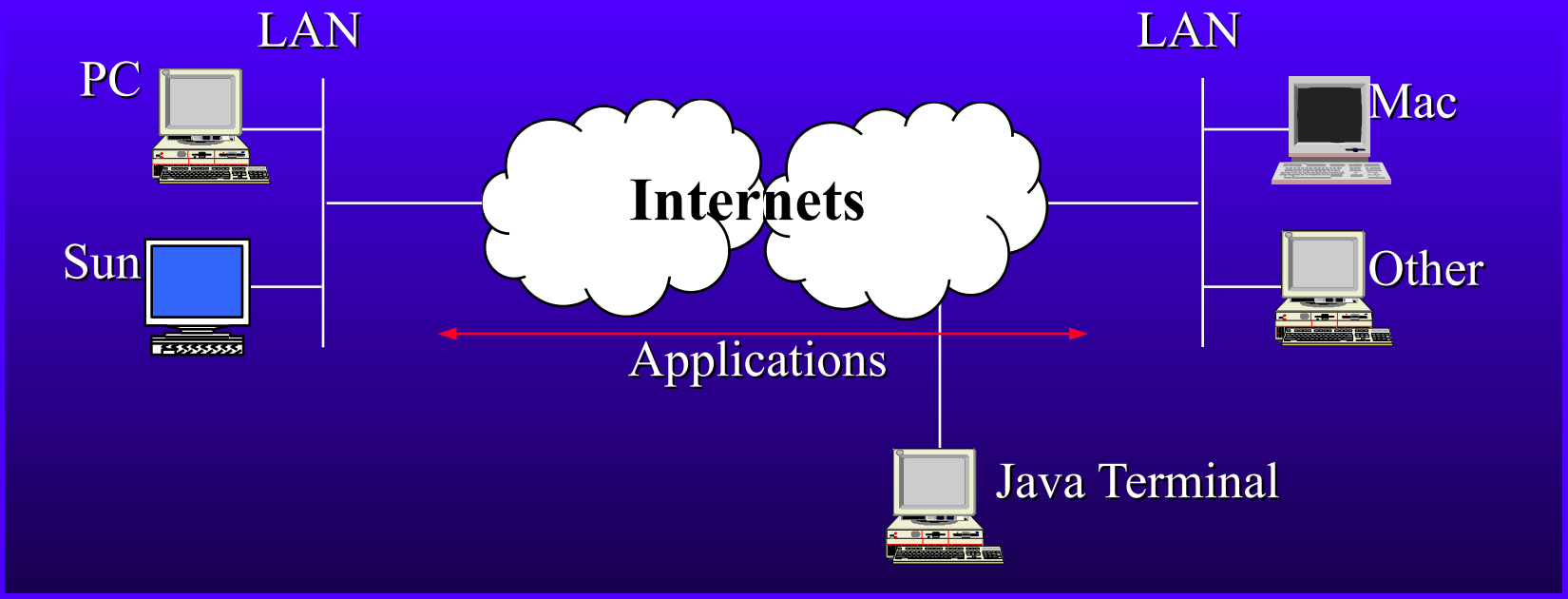
- Secu
- Management
  - Which version is the latest?

History of the Net

- "Know what you talk to and everything works". This is wrong !
- Unexpected requests don't work
- Intranet Vs Internet unknown and strange
- Universal Network Apps don't exist
- 11 % Growth / week ! (WWW)

Network Heterogeneity

- Problem - How to write applications for all Operating System versions and platforms ?
- Distribution, versioning, security ?



Today's Net

- 1995 - Most software engineering is devoted to porting across platforms
- Adding new functionality becomes impossible as the user base grows
  - "Baggage Train" effect

How Java Works: Java the System

- Java - The System
  - Network Neutral Language
  - C++ like source - compiled into:
    - Neutral Byte Codes, which make up
    - Downloadable objects/classes/applets
      - Safe (signed applications/classes)
      - Garbage collected

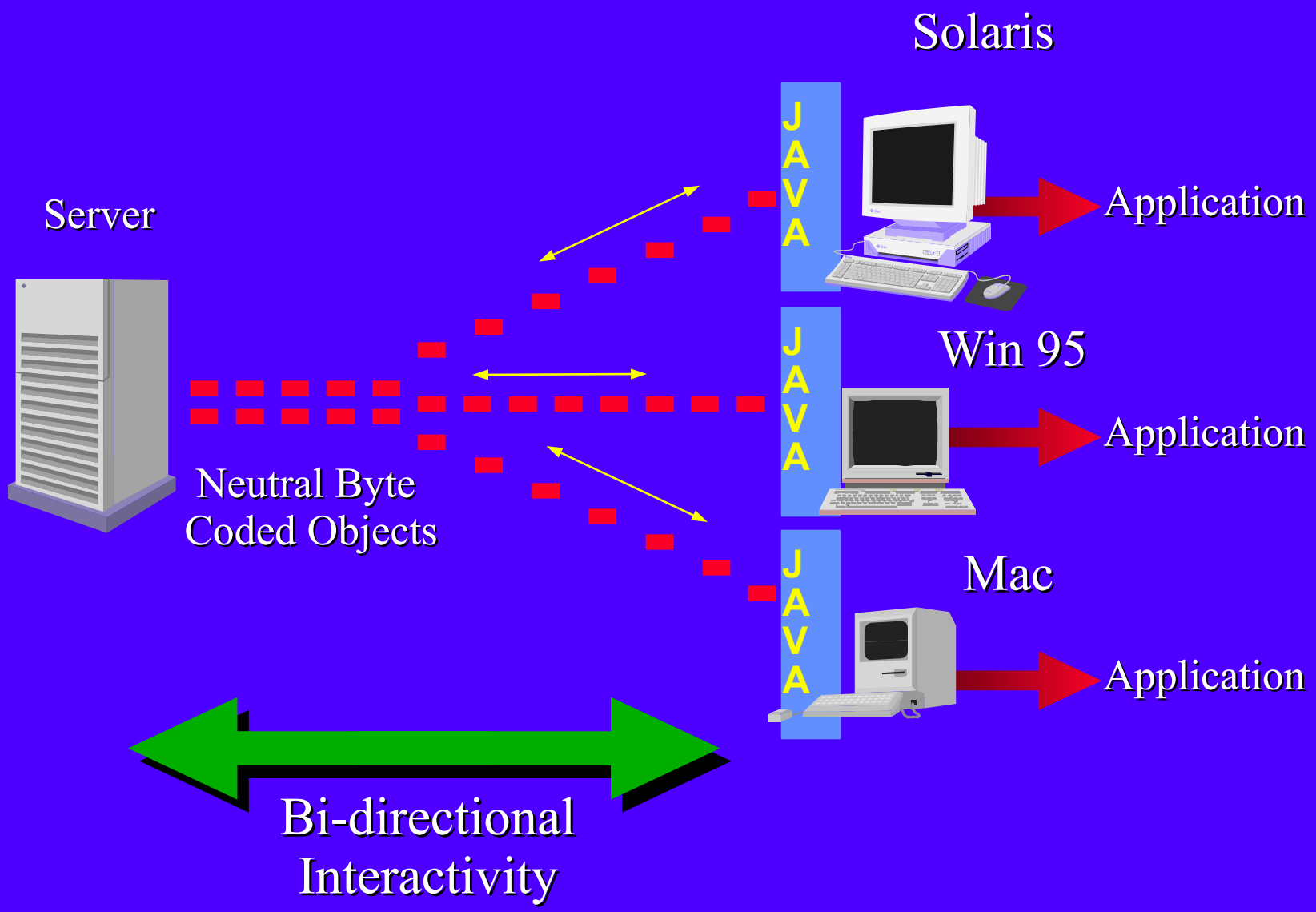
How Java Works: Java the Language

- Interpreted, late binding of objects
  - Neutral byte codes loaded from the net make up an application
  - Architecture independent
- Secure - restricted addressing
  - Classes loaded and interpreted
  - Byte Code verified
  - Class loader checks signatures

Java = Executable Content

- "C++ -- = = " Bill Joy
- Object classes provide functionality's
- Downloadable byte codes = program and data mixed
  - Content and instructions mixed
  - Bi directional data/instruction flow

Java


Solaris
Server
JAVA
Application
Win 95
Neutral Byte
Coded Objects
JAVA
Application
Mac
JAVA
Application
Bi-directional
Interactivity

Java Changes Everything

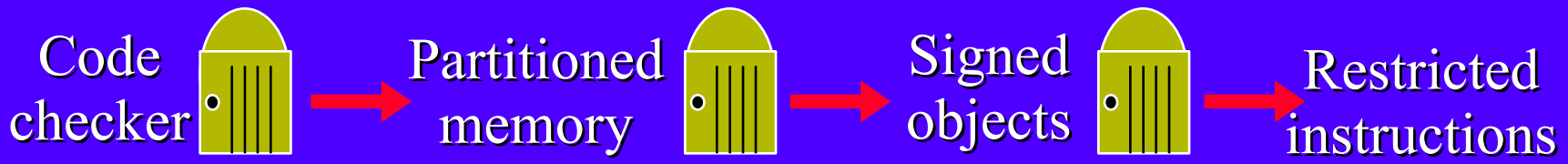
- The "Universal Application" Builder
- Network applications run on **every** platform with no modifications
- Applications composed of applets
  - From anywhere on the net
- Millions of applets mean
  - personalized applications
  - breaks monolithic, massive software model

Java Solutions

- Scaling and Management

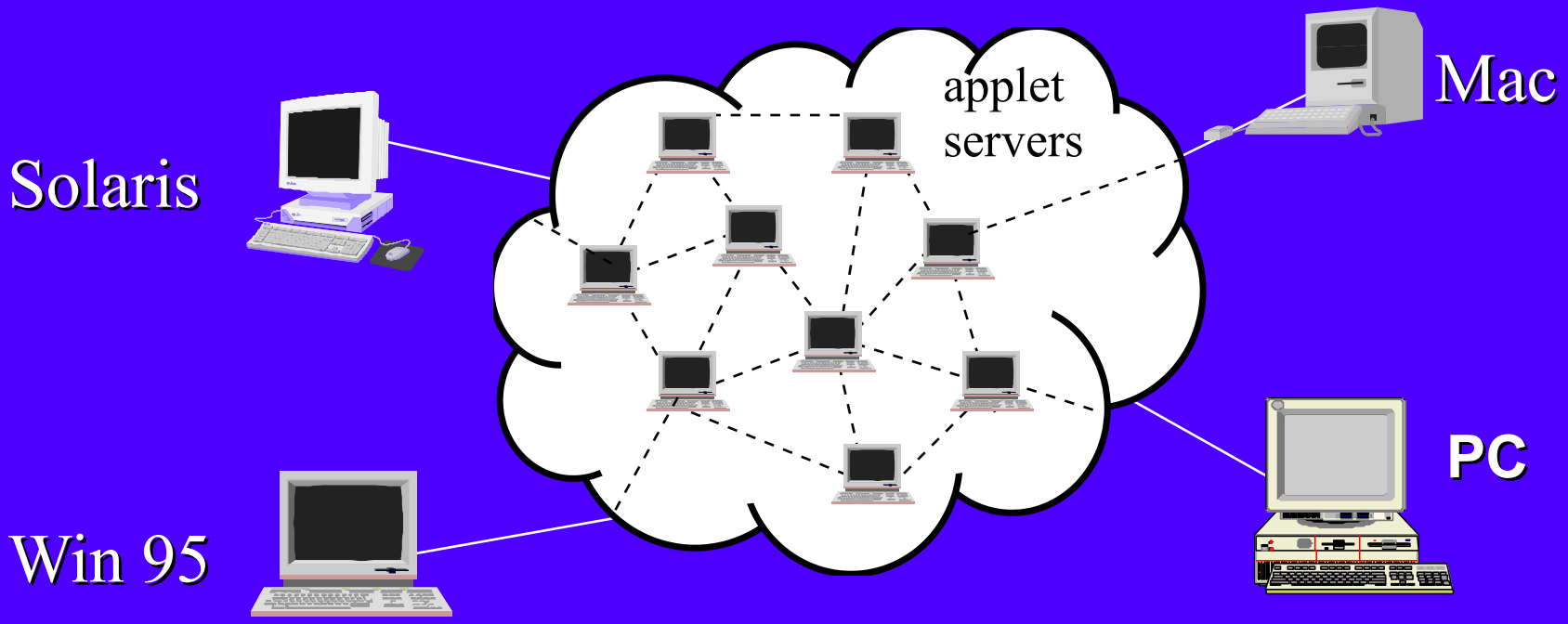
- Security

- One server copy
- Millions of clients download
- Latest copy each execution
- Build apps “on the fly”
- Interactive



Network = Java = Operating System

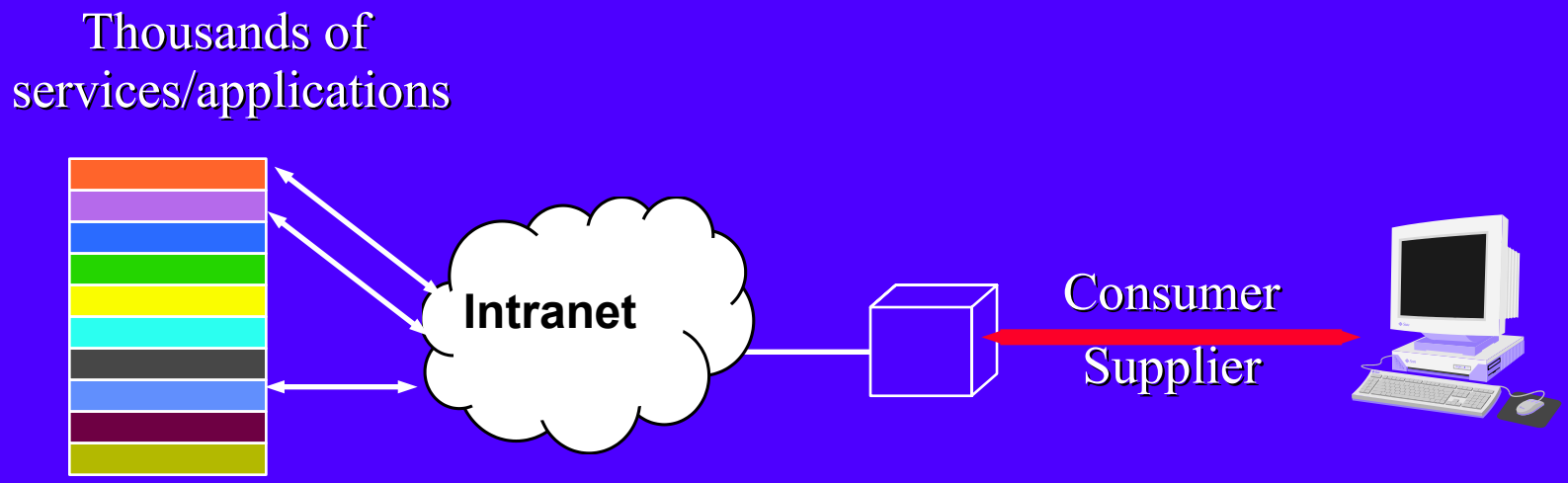
The network is the operating system



- With a universal interface to the network = HTML/HTTP
- Universal interface to executable content - Java
- Interactive “live” content

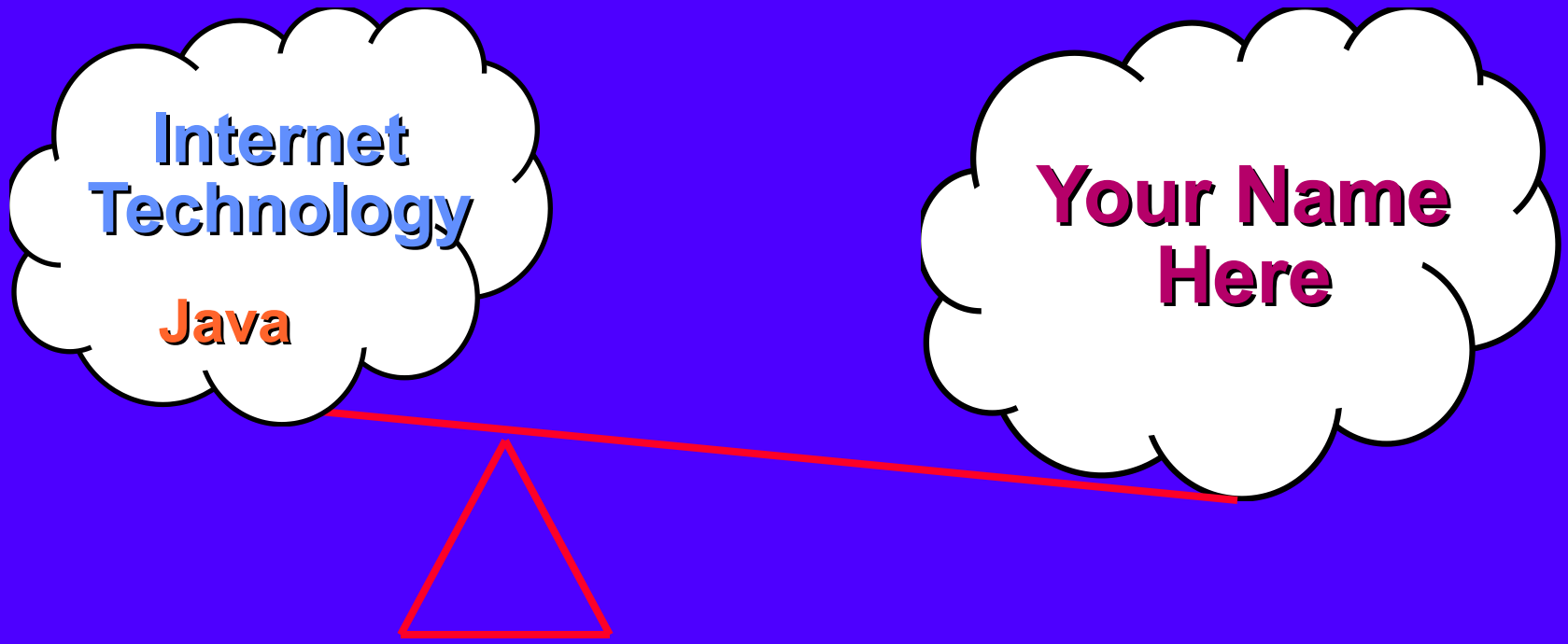
Impact on IS

- Value cannot be derived by delivering "just bits"
- Rapid delivery of services to diverse users a must



The Intranet Emerges

- Large and small Corporate Networks
- Manage and use Internet technology for the Corporate Intranet



Intranet + Java

- "Install that new application on all 17 843 machines by 3:00pm"
- "What is the latest version of that application on every host ?"
- "Who wrote that, I don't recognize it, it could be a Trojan Horse"

The Network now is the Computer

- The Network masks platform differences
- The Network provides the value add
- The Network is the Java software Store

Java Vision

- Lower the Bar
  - anyone may now compete in software development
- Change the model
  - Software distribution channels are forever altered
  - The net is the equalizer

Java Vision

- Universal Apps
  - applets loaded from anywhere
  - build them as you need them
- Disposable Apps
  - use and discard
  - assemble from various “best of breed” network objects

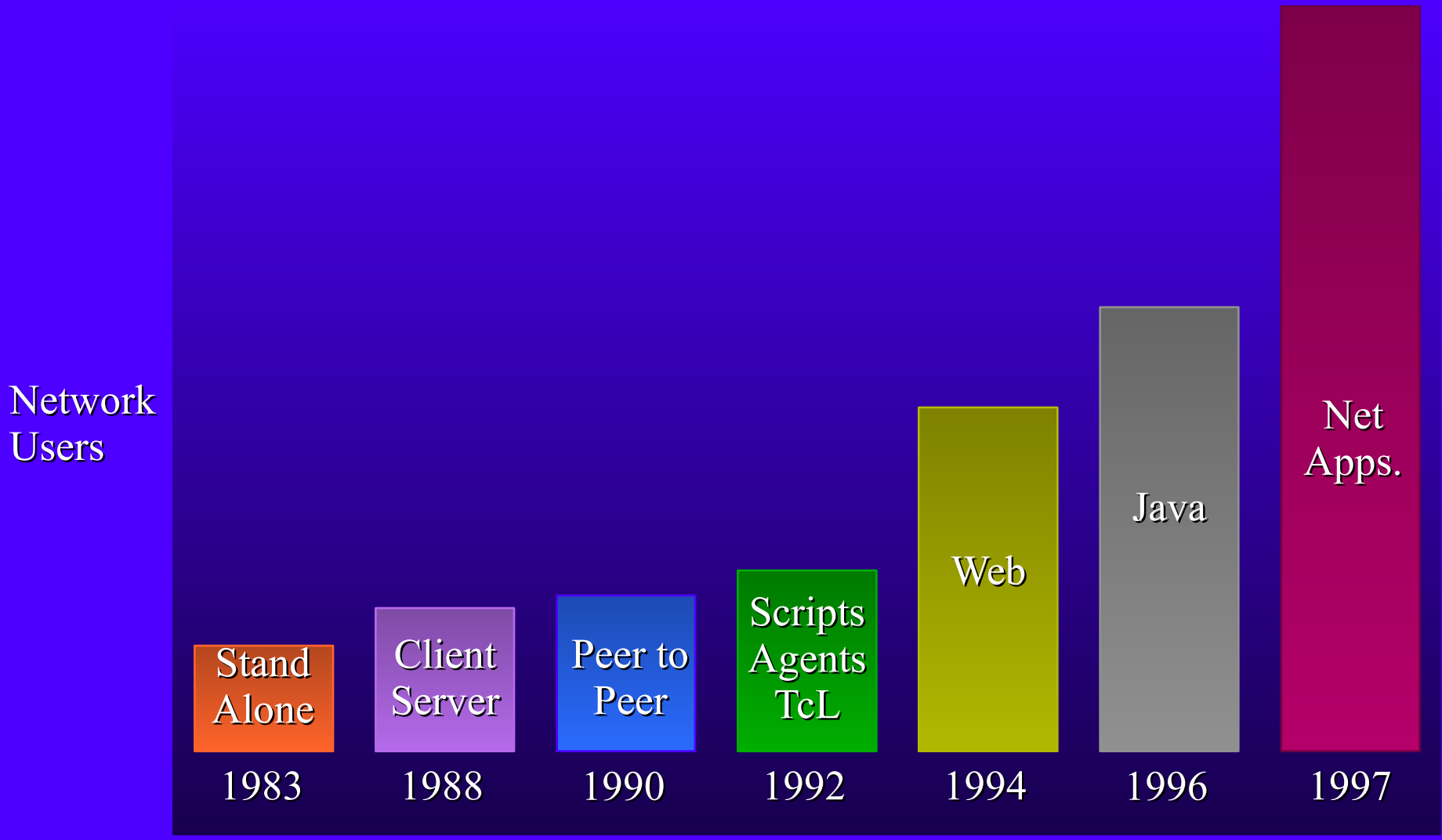
Java Near Term Futures

- Just in Time Compilers (JIT's)
- Classes for:
  - Media
  - Commerce/Security
  - Rendering
  - etc.

Java Futures

- Java on other devices
  - Network Appliances
  - Internet Terminals
- Java in non-traditional devices
- Java for Network/System Mgmt

Evolution of Network Computing



Conclusions

- Java = fundamental shift in the computer industry
- The Network predominates
- Universal Application Era is here.