

Jini™ Technology: Simply Connect.



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Any technology that is distinguishable from magic...

is insufficiently advanced



The Significance of Jini Technology



- **For consumers:**
  Simply connect to any device, any service, any time
- **For programmers and service providers:**
  A simple way to create and deploy new Hardware and Software services
- **For device manufacturers:**
  New business opportunities and competitive advantages
- **For Sun:**
  Sparks a major initiative into the consumer arena

Jini Vision

Sun microsystems

Powered By

100% PURE JAVA

3rd Party Content Creators

Back Office Servers

New Products

New Markets

Network Services

Spontaneous Service Creation and Delivery

ISDN

DSL

Dial-up

Technology Foundation

Cable Modem

Cellular/PCS

Paging

Satellite

Airport

SOHO

Home

Hotel



Jini Market Making Activities



- Broad Partnership Participation in Beta Program
  - Began July 1998
  - Approximately 30 partners in broad areas
- Jini Launch with OEM Partners
  - January 1999
  - 37 Partners Participate
- Service Providers (Telcos, OEMs, Hotels ...)
  - Build vertical solutions solving customer needs
  - Now
- Move OEM Partners to Products



Strategic Areas



- Areas of Focus
  - Connected Home
  - Connected Enterprise
  - Services Portal
  - Service Provider to
    - Home
    - Enterprise
    - Mobile
  - Content Providers
- Build Solutions
  - Core Infrastructure (us)
  - Solutions (partners)



Rapid Adoption of Jini Technology



- Thousands of Jini community members
- Products already under development:
  - Computer devices (printers and storage)
  - Consumer devices (cameras, DVD, VCR etc.)
  - Mobile devices (pager, cell phone, PDA)
  - Automotive devices (GPS, sound, embedded control)
  - Networked devices (routers, switches)
- Products shipping in 2000

Dozens of Companies Already Developing Jini Products



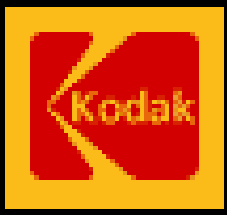




















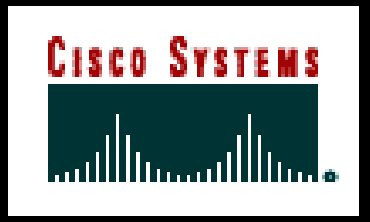












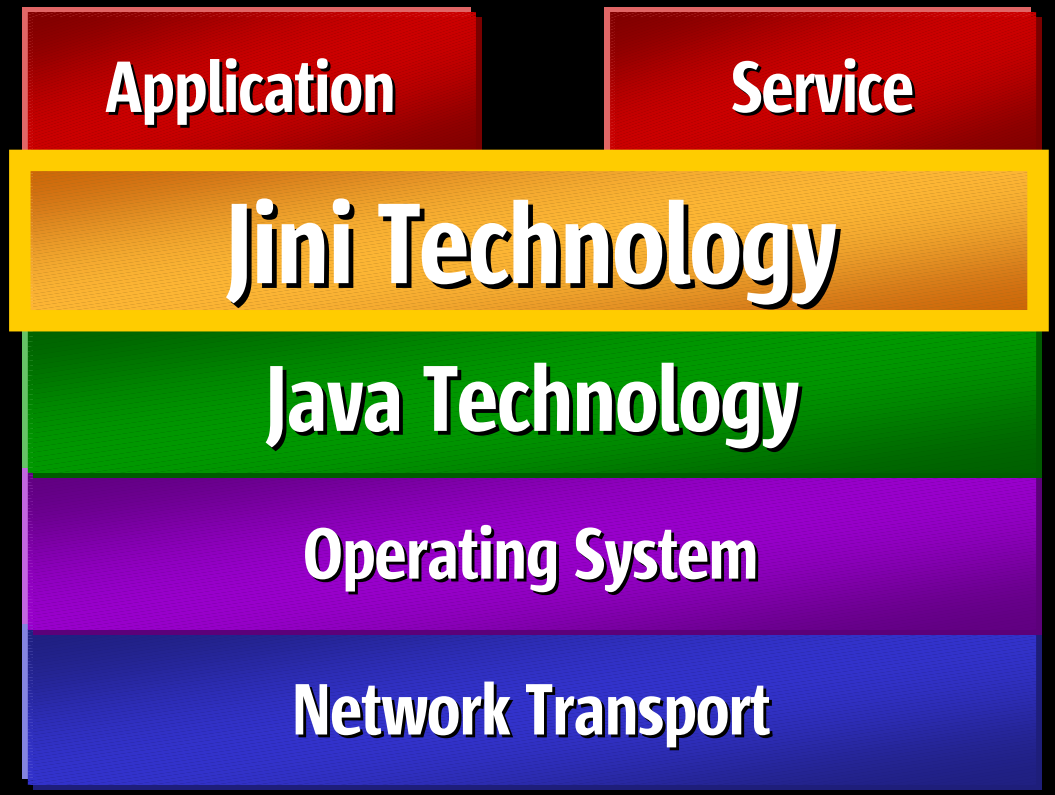




What is Jini Technology?

Nothing more than a small piece of Java code...

...Nothing less than the cornerstone technology of a new era.





Jini Technology:
The Best Ideas are Simple.



- **Instant on**
  - Plug it in and simply connect, right away, no fuss
- **Impromptu community**
  - Create your personal community of devices and services–at home, in the office, or on the road–and interact with other communities quickly and easily
- **Resilience**
  - Your Jini community is always available
- **Special delivery**
  - Services available on demand

Special Delivery

The services you need are delivered instantly, as you need them



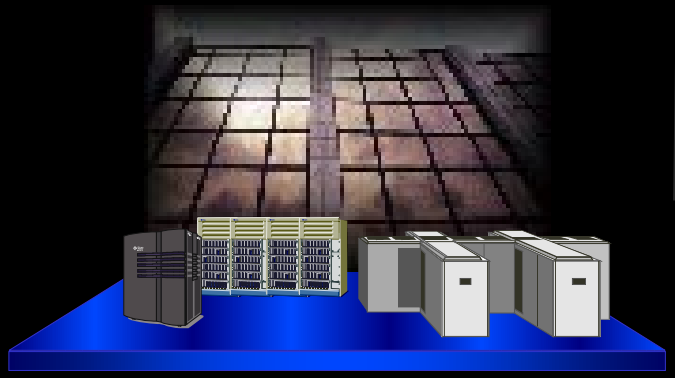
Small Office



Home

Email
Voice
Financial
Telephony
Entertainment

Services



Corporate Data Center



Mobile

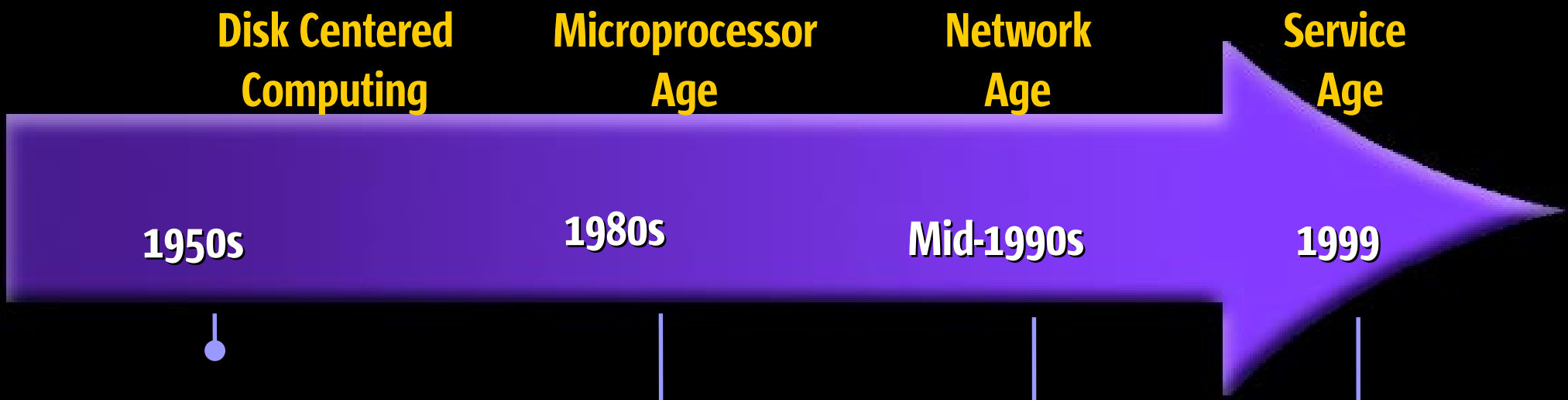




Jini Technology in Perspective

Keeping the Promise

The Evolution of Computing



- CPU
- Disk
- Disk-oriented OS
- Proprietary Interfaces

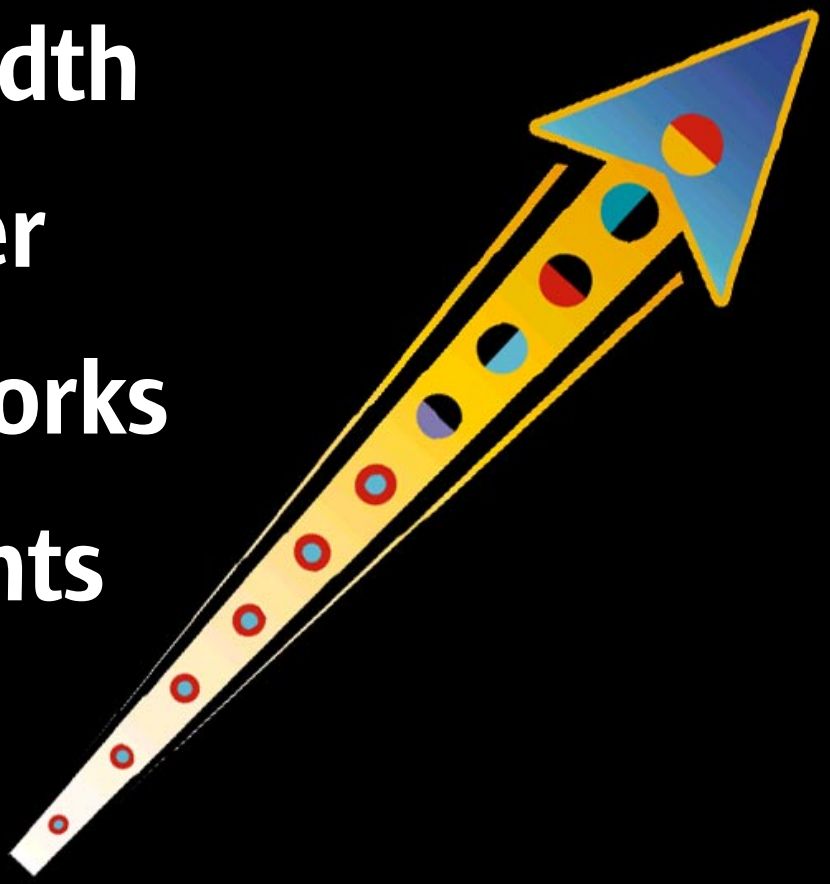
- Multichip CPUs
- Systems on a Board
- Inexpensive Disks
- Generic Interfaces

- Embedded Devices
- Personal Devices
- Network Services
- Dynamic Interfaces

- Jini Communities
- Java Services
- Intelligent Interfaces

What's Driving the Transition to the Service Age?

- Network bandwidth
- Processing power
- Number of networks
- Objects and agents





Java Technology Made Sun's Vision Possible



- Write Once, Run Anywhere™
- Learn Once, Write Anywhere
- Object-oriented
- Dynamic
- Secure







Jini Technology Makes Sun's Vision Real

- Constitution for networked devices
- Everything is an object
- Backward compatibility



What You Need to Use Jini Technology









Jini Technology Principles



- **Simplicity**
  - Small code base
  - No complicated OS
  - Everything is an object
- **Resilience**
  - Self-healing networks
  - Tolerance
- **Easy access to the Jini community**

"We've taken the time to make it simple"

-- Bill Joy





Jini Technology:
A Simple Registration Process

- Discovery and Join:
  - Lets devices find and join a Jini community
  - Enables devices to advertise their services
- Lookup Service:
  - Provides a bulletin board of available services
  - Downloads services to users



Discovery



- Allows Jini services (both HW and SW) to:
  - Find and join a group of Jini devices (a djinn)
  - Advertise its capabilities
  - Provide any required SW and attributes
  - Works with JVM-enabled or non-JVM devices
    - Send out a multicast packet with reference to yourself
    - Receive a RMI reference to the Lookup service

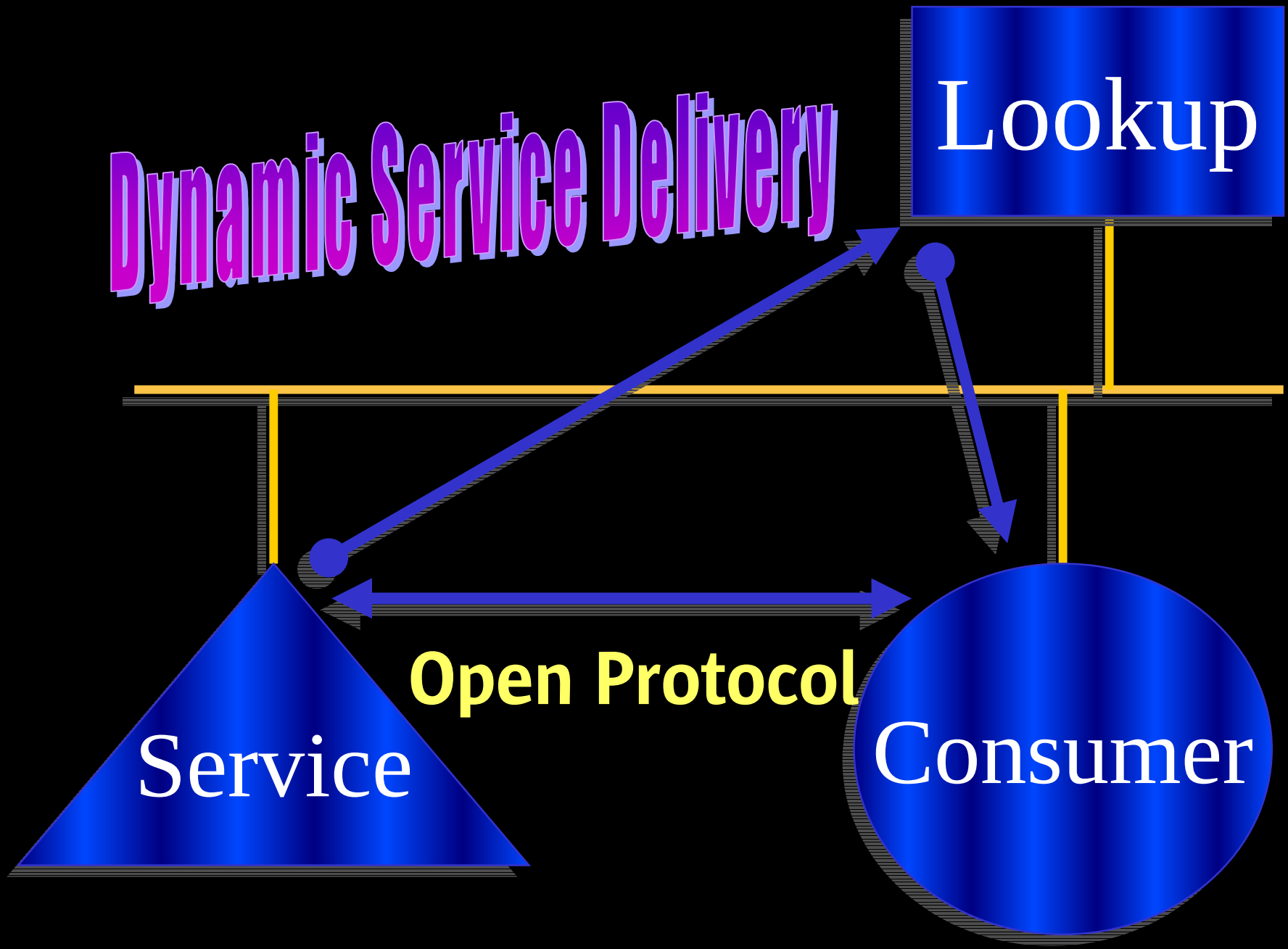
"Discovery solves the problem of finding the place to start in an unknown network"

Lookup

- Repository of available services
- Stores each service as an extensible set of Java objects
  - ID, interface, GUI's, attributes, drivers, etc.
- Service objects downloaded to user as required
- May be federated with other Lookup services
- Lookup service interface:
  - Registration, access, search, removal

"The lookup service binds the federation together"

Service Example





Programming Model

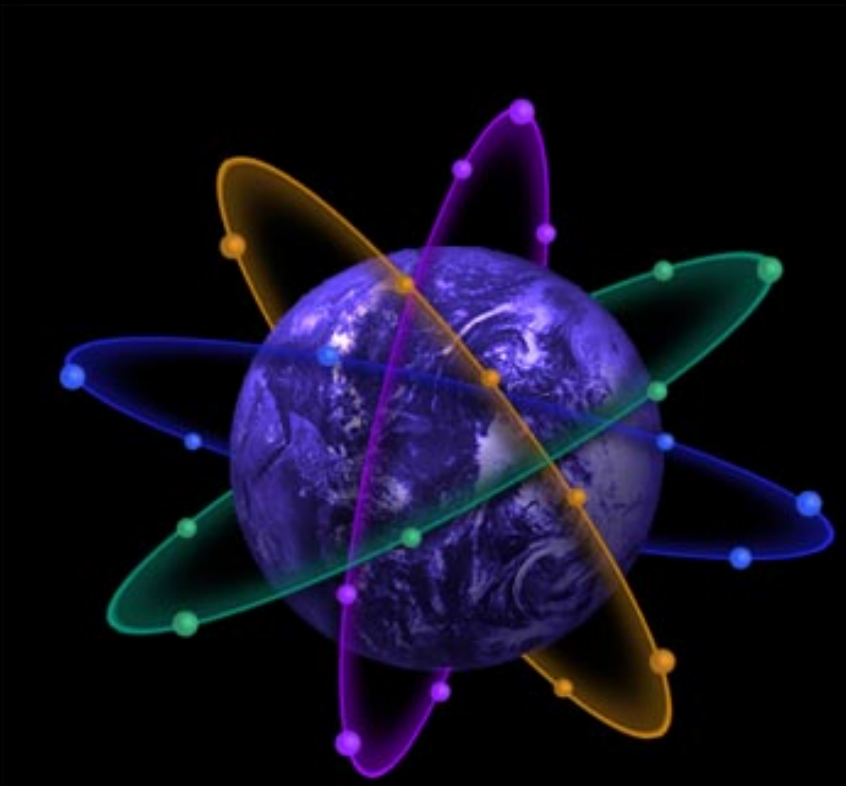


- Extension of the Java programming model to distributed, interconnected objects
- Protocols that can be used by the services and infrastructure to communication between themselves
- Low resource requirements
- Extensile and flexible

"The Programming Model binds the services to the infrastructure to create a system rather than just a loose collection of services and protocols"

Jini Technology:
Distributed Computing Model

- Leasing
- Event management
- Transactions
- JavaRMI



Free flow of objects--from anywhere, to anywhere

Jini Federations

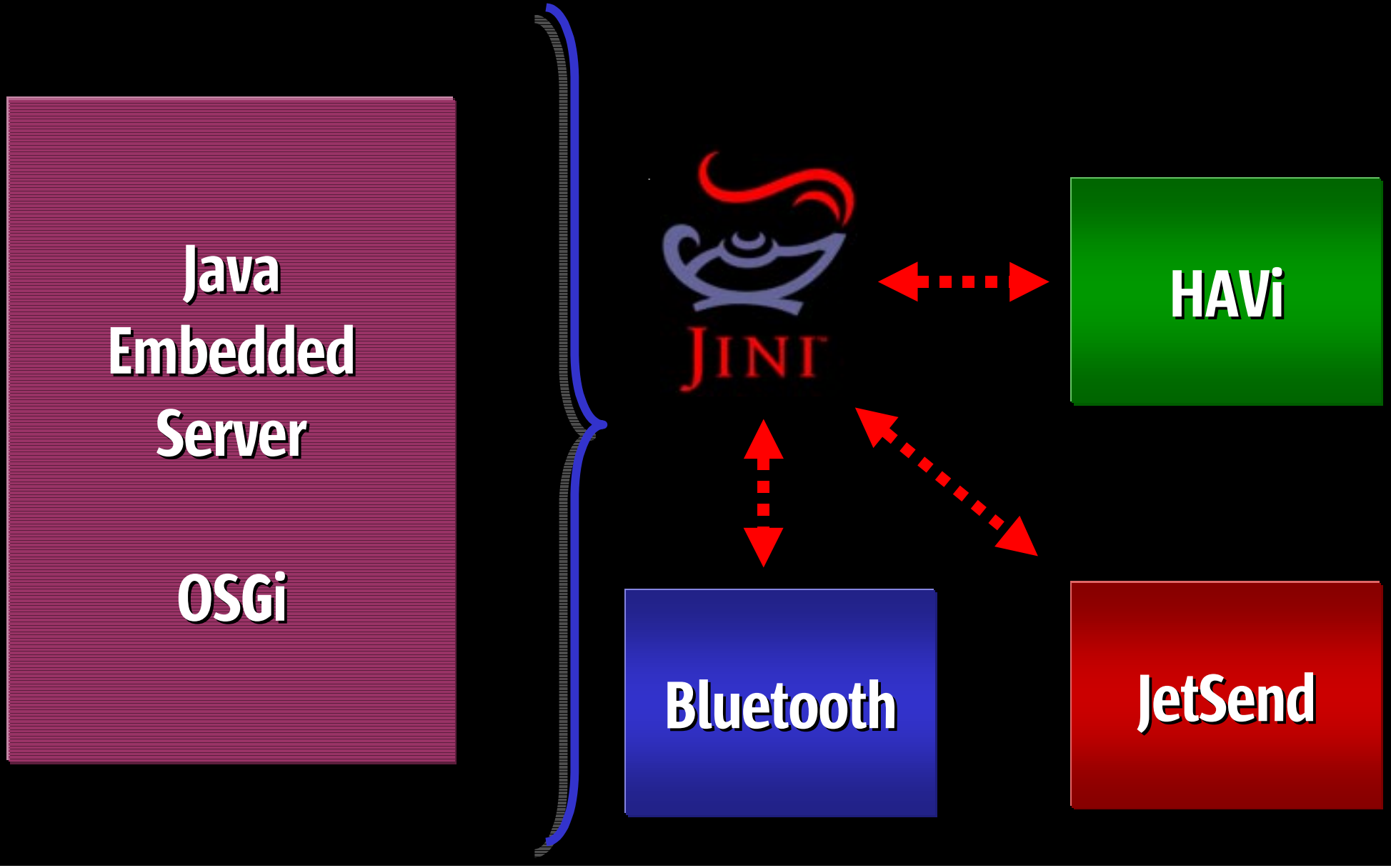
- What is a Jini Federation?
  - A Jini Community is....

    "A group of devices, resources, and users joined by the Jini software infrastructure. This group, controlled by the Jini system, agrees on basic notions of trust, administration, identification, and policy."

- We can conceive of more than one Jini community, sharing some or all of their respective services....

....a Jini Federation!

Jini Technology Complements Emerging Technologies



Small Footprint Java
J2ME + Jini







Summary



- Jini technology is real; it's happening
- Jini technology will allow the industry to move to the next level
  - Delivering simplified access to services
  - Solving compatibility issues
  - Providing resiliency and security