



Project JXTA for Linux

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www.jxta.org



The Time Is Right for P2P and Project JXTA

Peer-to-Peer (P2P) is not new. However, the time is *now* right for the broad P2P applications deployment.

The Project JXTA technology lets developers build and deploy P2P solutions more quickly.

Topics

- Peer-to-Peer computing
- Project JXTA technology
- Project JXTA today
- Future directions

What Is Peer-to-Peer (P2P)?

- P2P covers a wide range of applications...
 - Sharing files, distributed search and indexing
 - Sharing CPU and storage resources
 - Instant messaging & devices communicating together
 - Collaborative work (and games)
 - Web services
 - New forms of content distribution, sharing, and delivery
- P2P is not...
 - New or a specific architecture, technology, business model, or market
 - About eliminating servers or centralized services

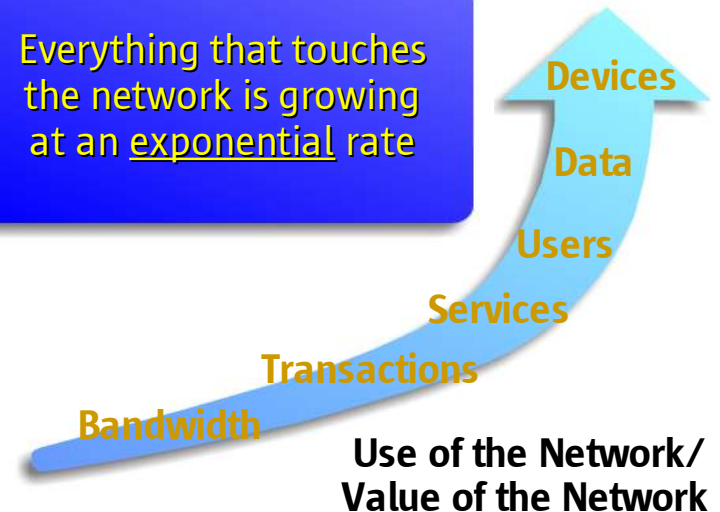
P2P is about any device easily connecting “directly” to other devices to enable a more cooperative, or social, style of computing.

P2P Makes Sense Now

- More people connected, more data generated
- More nodes on the Internet and wireless Web
- More bandwidth available
- More computing power available (disk, memory, CPU)
- More interesting applications, content, and services
- Edge devices are increasingly providers of resources

Network Computing Explosion

Everything that touches the network is growing at an exponential rate



Characteristics of Ideal P2P Applications

- Applications best suited for P2P implementation are those where:
 - Centralization is not possible or desired
 - Massive scalability is desired
 - Relationships are transient or ad-hoc
 - Resources are highly distributed
 - Resilience is desired

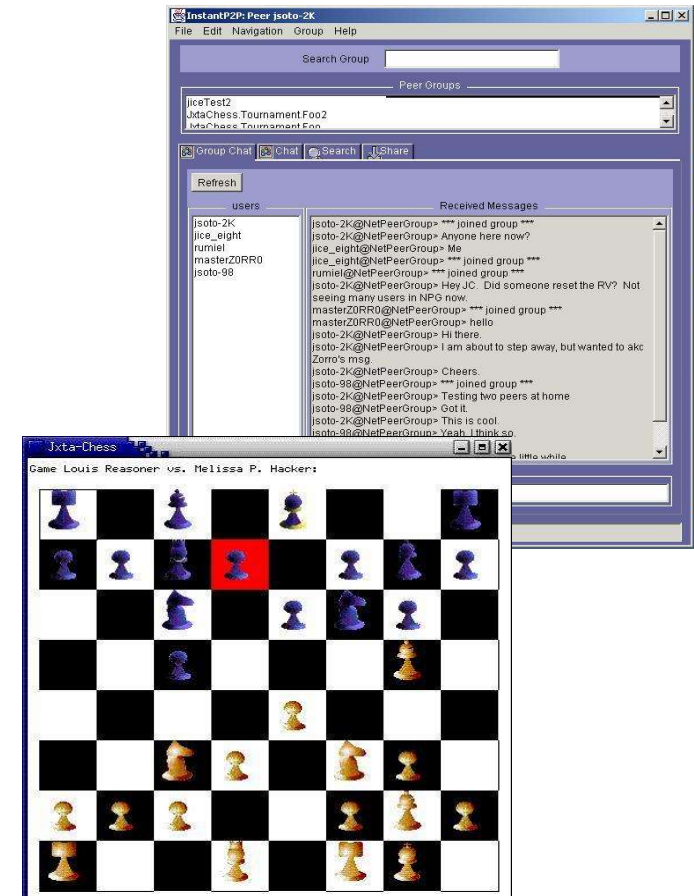
Their value or performance increases as more nodes participate in the network

What is Project JXTA?

- An open set of XML-based protocols for creating peer-to-peer style network computing applications and services
 - A virtual network overlay
 - Protocol based --> language, OS, network, and service agnostic technology
 - Defines mechanisms, not policies
 - Open Source project: www.jxta.org

JXTA Enables Classic P2P Applications

- Communications, collaboration, gaming
- Content delivery and sharing networks
- Transactional Web services
- Resource sharing



JXTA Sample Applications

Wireless P2P on Java™ 2 Platform, Micro Edition (J2ME™)



P2P Messaging
Group and 1:1 Chat

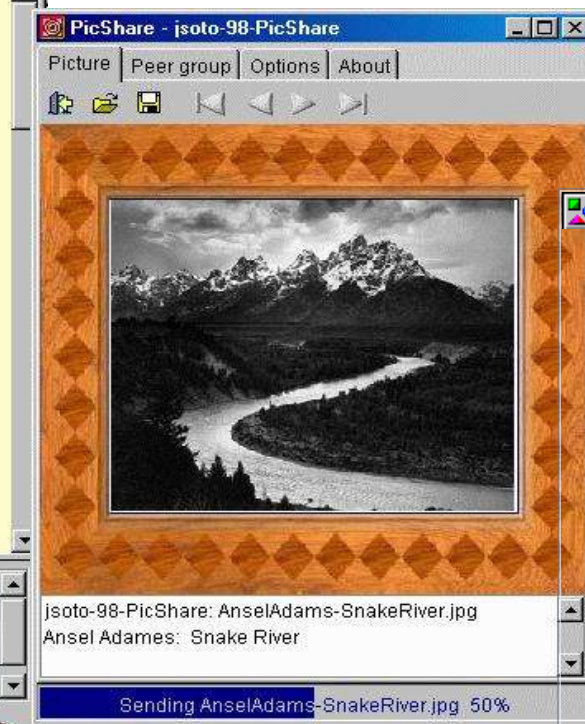


P2P Entertainment
TicTacToe Game

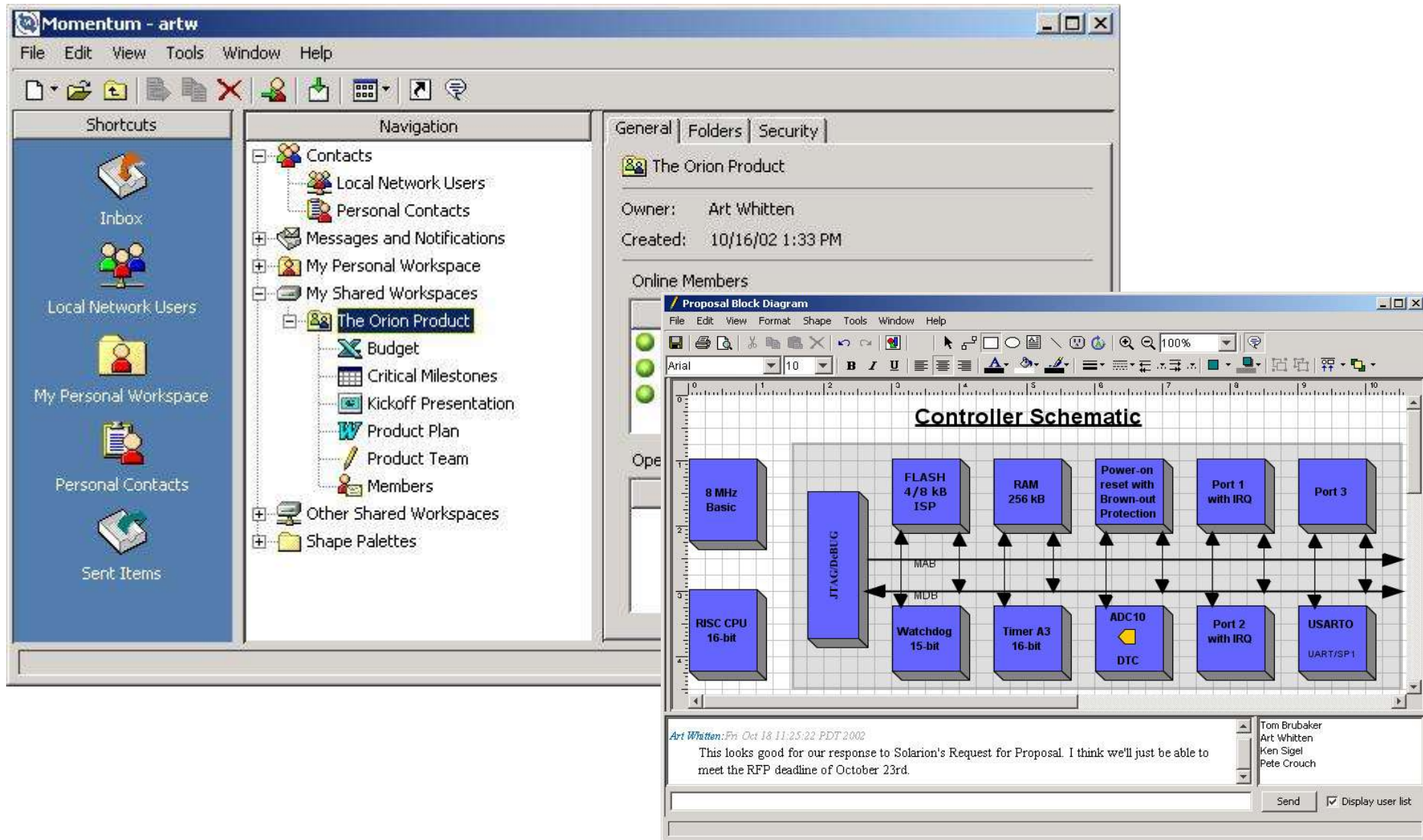


P2P Image Sharing

JXTA Sample Applications – myJXTA2 and PicShare



JXTA Sample Applications – Momentum 1.0 by InView Software



The screenshot displays the Momentum 1.0 application interface, which is a JXTA sample application by InView Software. The interface is divided into several panes:

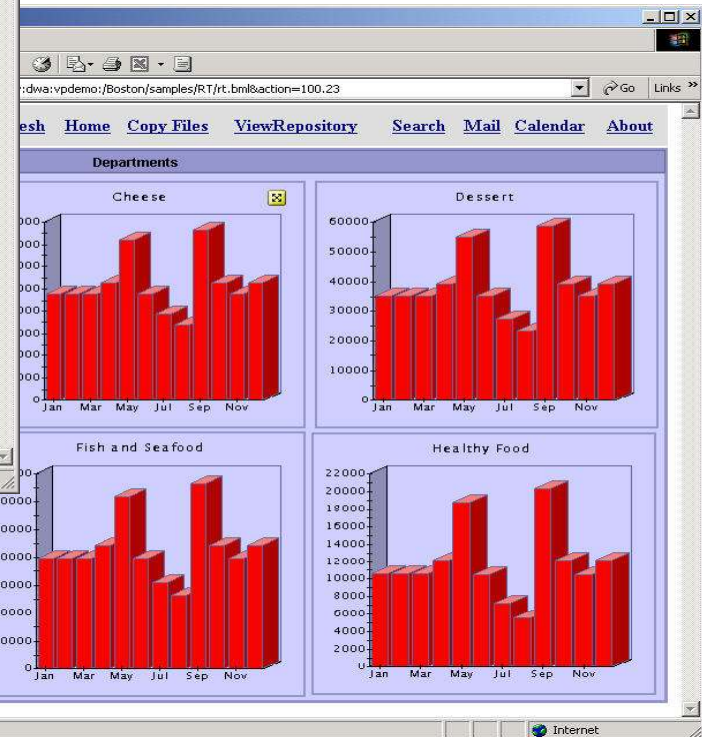
- Shortcuts:** A vertical list of shortcuts including Inbox, Local Network Users, My Personal Workspace, Personal Contacts, and Sent Items.
- Navigation:** A tree view showing the hierarchy of the workspace, including Contacts, Local Network Users, Personal Contacts, Messages and Notifications, My Personal Workspace, My Shared Workspaces, and The Orion Product (which is currently selected).
- General:** A pane showing details for 'The Orion Product', including the Owner (Art Whitten) and the Created date (10/16/02 1:33 PM).
- Online Members:** A pane showing the list of online members, including Tom Brubaker, Art Whitten, Ken Sigel, and Pete Crouch.
- Proposal Block Diagram:** A diagram titled 'Controller Schematic' showing the internal components of a controller. The components are arranged in a grid and connected by a central bus (MAB/MDB). The components include:
 - 8 MHz Basic
 - RISC CPU 16-bit
 - FLASH 4/8 kB ISP
 - RAM 256 kB
 - Power-on reset with Brown-out Protection
 - Port 1 with IRQ
 - Port 3
 - Watchdog 15-bit
 - Timer A3 16-bit
 - ADC10 DTC
 - Port 2 with IRQ
 - USART0 UART/SP1

At the bottom of the interface, there is a chat window with the following text:

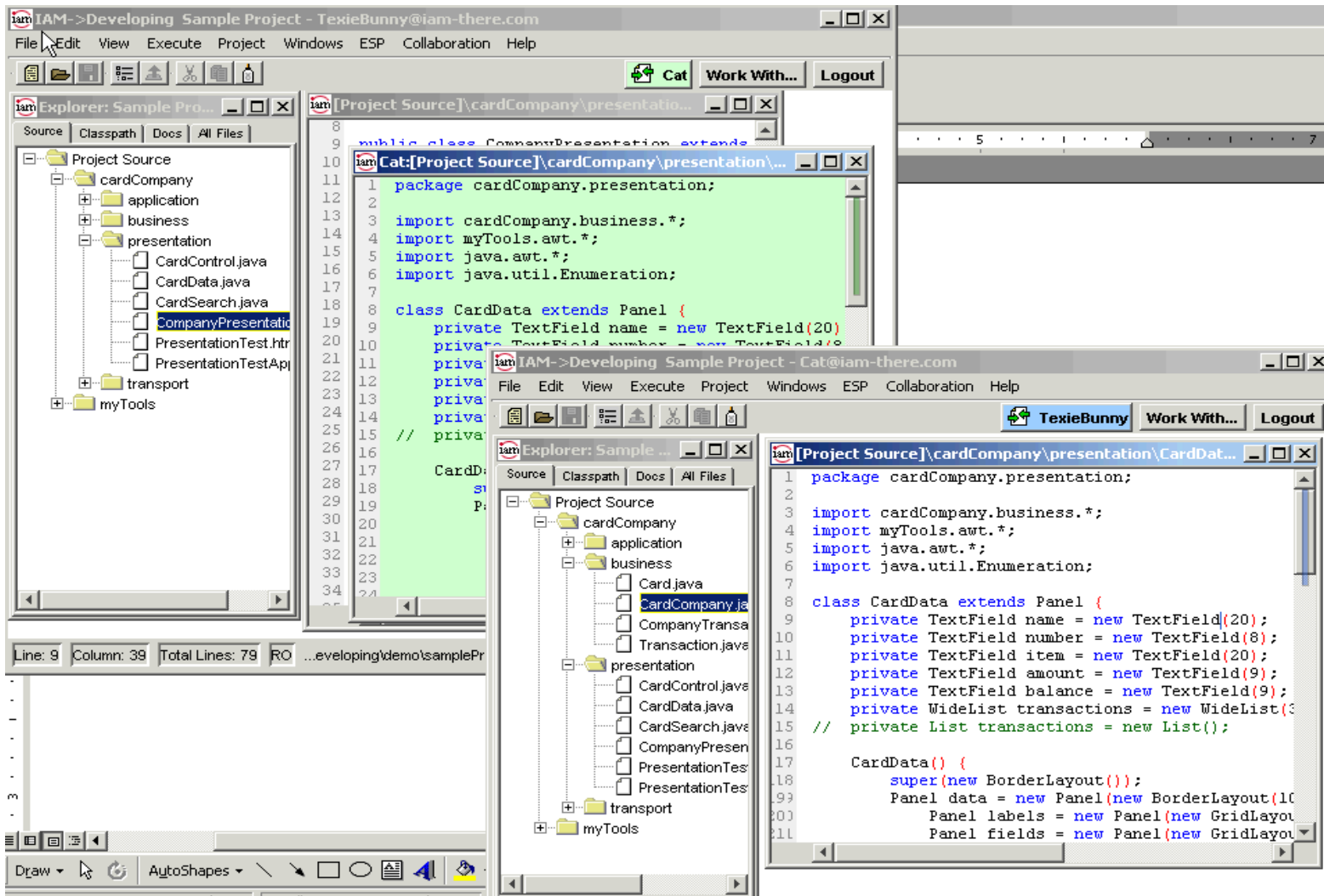
Art Whitten: Fri Oct 18 11:25:22 PDT 2002
This looks good for our response to Solarion's Request for Proposal. I think we'll just be able to meet the RFP deadline of October 23rd.

The chat window also includes a list of online members (Tom Brubaker, Art Whitten, Ken Sigel, Pete Crouch) and a 'Send' button with a 'Display user list' checkbox.

JXTA Sample Applications – VistaPortal



JXTA Sample Applications - Java IDE by Internet Access Methods



The screenshot displays the IAM Java IDE interface. The top window, titled "IAM->Developing Sample Project - TexieBunny@iam-there.com", shows a project explorer on the left with a tree view of the project structure. The main editor area displays the source code for the `CompanyPresentation` class, which extends `Panel` and contains several private text fields and a `WideList` for transactions.

A second window, titled "IAM->Developing Sample Project - Cat@iam-there.com", is also visible, showing the source code for the `CardData` class, which also extends `Panel` and contains private text fields and a `WideList` for transactions.

The project structure in the explorer includes the following folders and files:

- Project Source
 - cardCompany
 - application
 - business
 - presentation
 - CardControl.java
 - CardData.java
 - CardSearch.java
 - CompanyPresentation.java
 - PresentationTest.htm
 - PresentationTestApp
 - transport
 - myTools

Sampling of JXTA Technology Users

SIEMENS

JPL

neofonie

iam
internet access methods

neofonet solutions.com
Connecting Enterprise Content

inview
SOFTWARE

Alberg

VistaPortal

NATIONAL ASSOCIATION OF REALTORS®
The Voice for Real Estate®
REALTOR®

infoGLYPTIC

topologi

Oculus
TECHNOLOGIES

Zudha

NACS National Association of
Convenience Stores

GITI

Tryllian

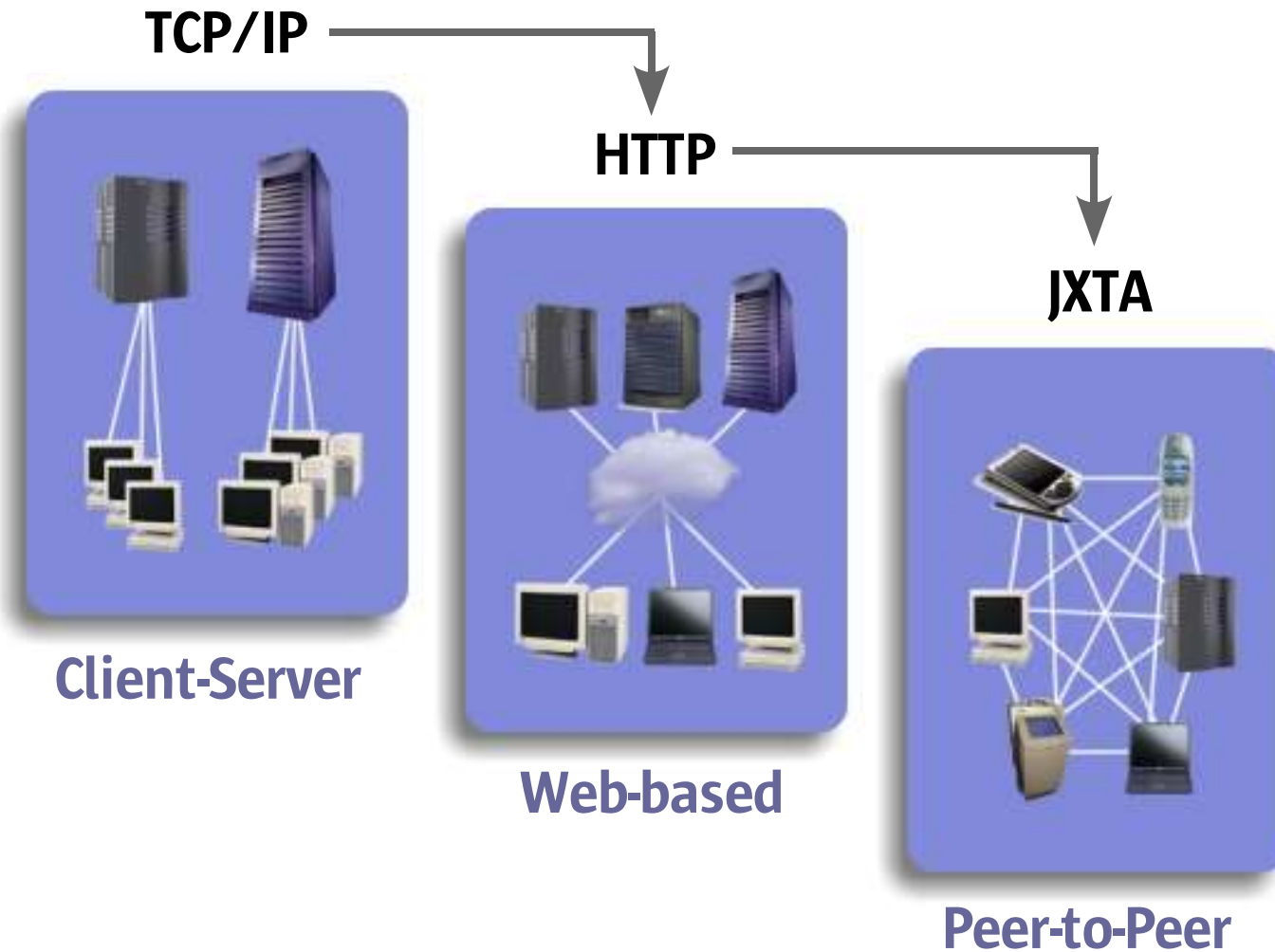
Global InfoTek, Inc.

BBN
TECHNOLOGIES
A Verizon Company

Endeavors
TECHNOLOGY

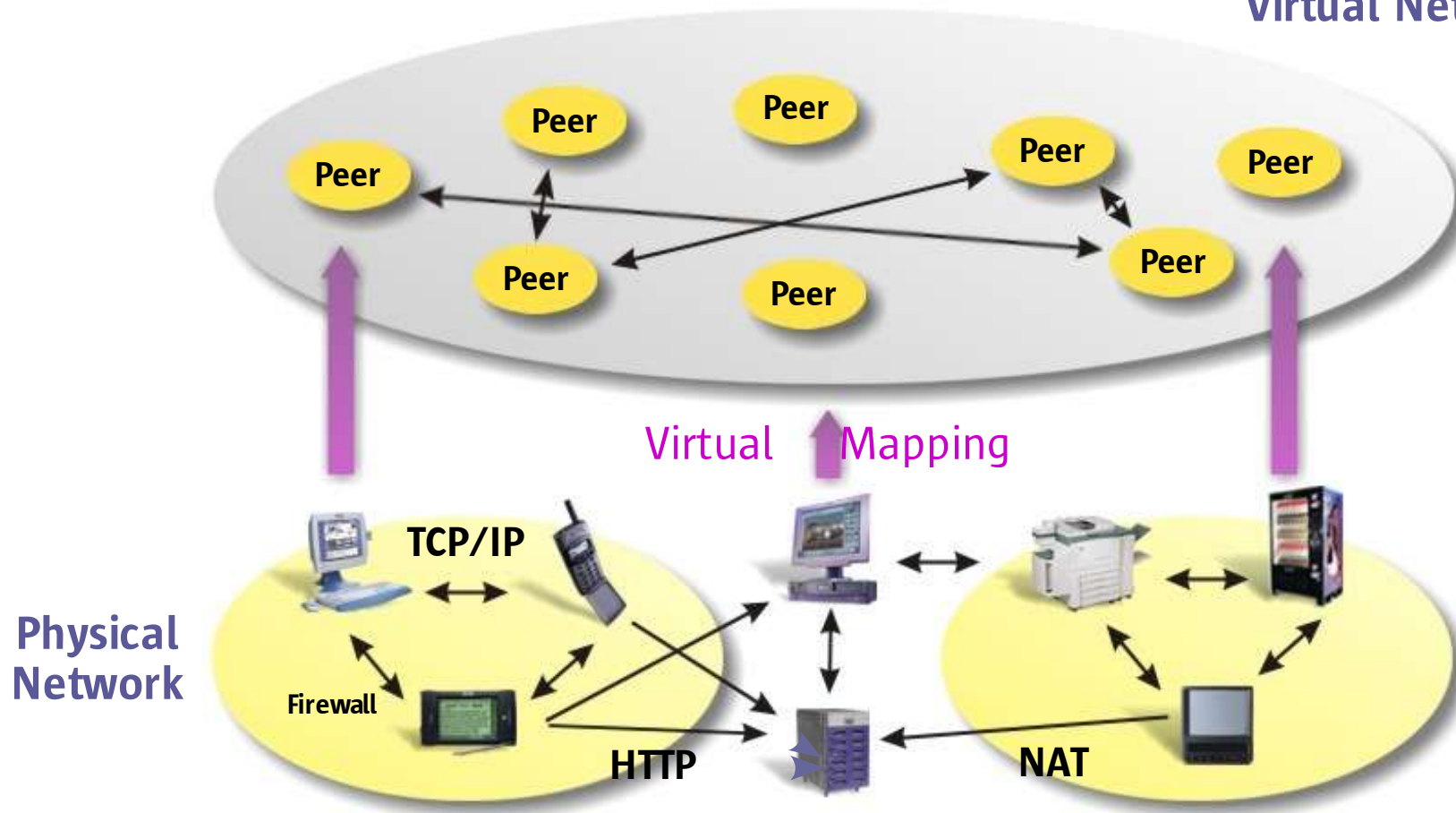
CIMPLER

Protocols Drive Distributed Computing



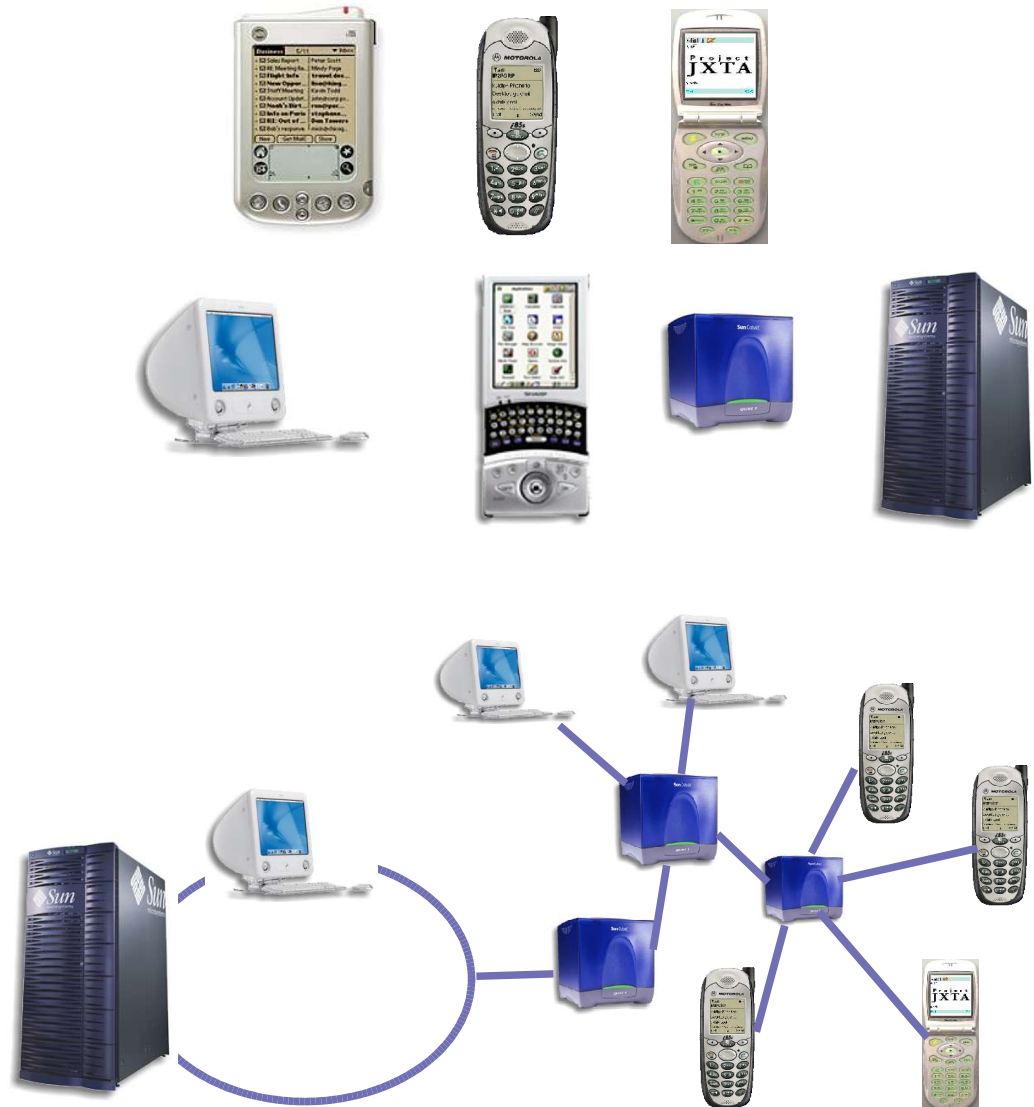
JXTA Virtual Network

Project JXTA
Virtual Network



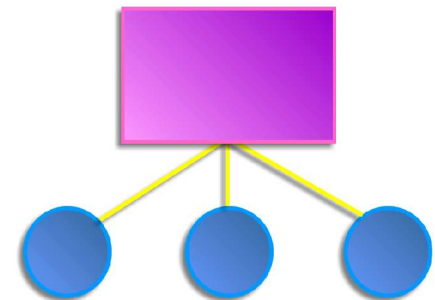
JXTA Peer Types

- Micro peers
- Standard peers
- Super peers:
 - Rendezvous peer
 - Relay peer
 - Proxy peer

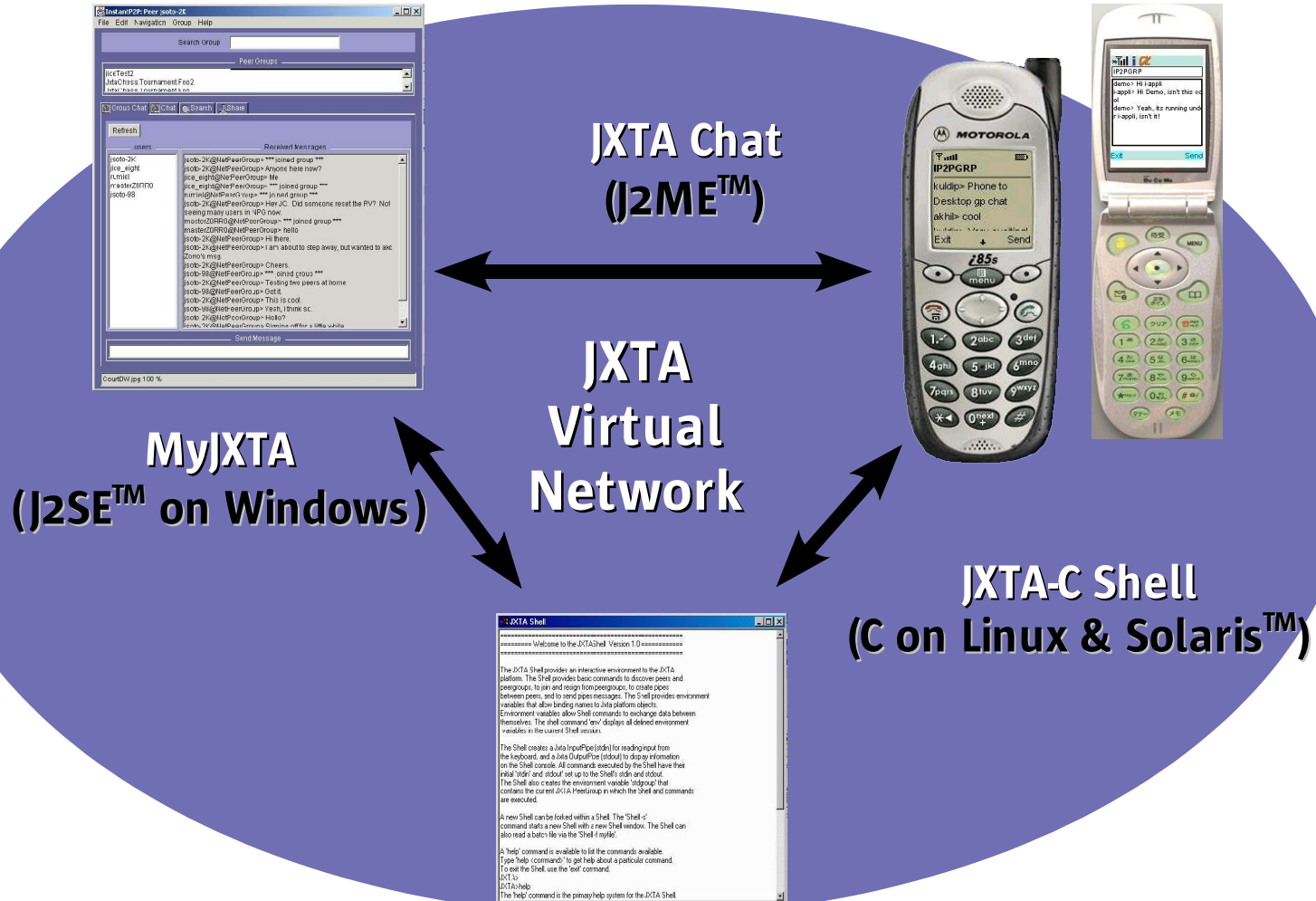


JXTA Technology Objectives

- Interoperability
 - Across different P2P systems and communities
- Platform independence
 - Programming languages, system platforms, and networking platforms
- Ubiquity
 - Every device with a digital heartbeat
- Security and Monitoring
 - For commercial and enterprise deployment



Any Platform, Any Network



JXTA Software Architecture

JXTA Applications

Sample Applications

Instant Messaging

File Sharing

Resource Sharing

Collaborative Apps

Auctions

JXTA Services

Sample Services

Search

Indexing

Discovery

Membership

JXTA Core

Peer Groups

Peer Pipes

Peer Monitoring

Peer Advertisements

Peer IDs

Security

Any Connected Device



JXTA Is Based on Protocols

- JXTA defines XML message formats, or protocols, for communication between peers
- Protocols used to discover peers, advertise and discover resources, communicate and route messages, and provide monitoring
- Can be implemented in any language

JXTA Implementation Platforms

- J2SE™ Implementation
 - Full implementation of JXTA protocols
 - Standard and Super Peer functionality
 - APIs and functionality frozen
- JXTA-C
 - Standard Peer functionality only
 - Runs on Linux, Solaris OE, and Windows
- JXTA for J2ME™
 - Micro Peer functionality only
 - MIDP-1.0 compliant
 - lappli compliant

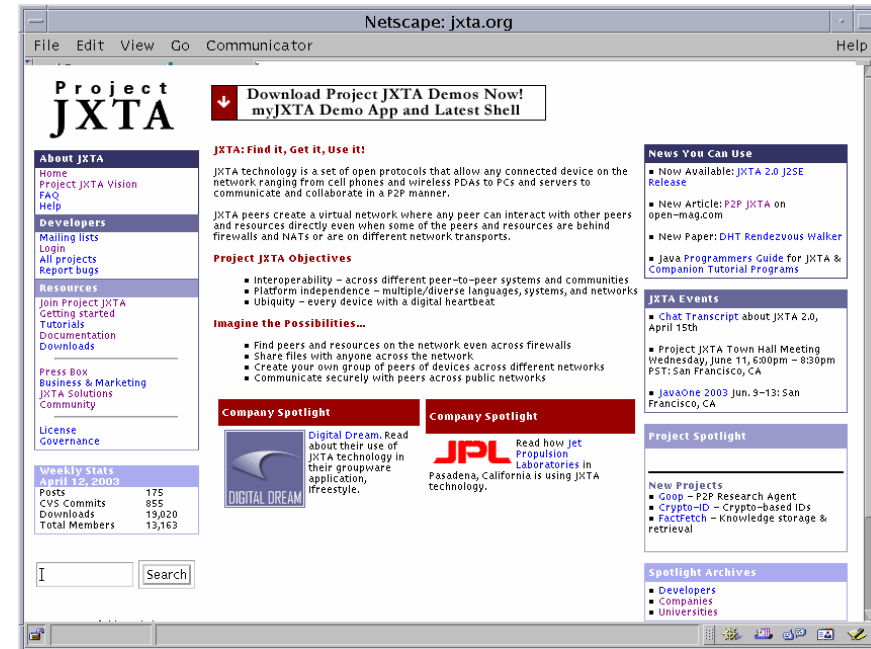
jxta.org Based on a Proven Open Source Model

- www.jxta.org
 - All source, projects, docs, examples on-line
- Apache-style software license
 - No barriers to getting started
 - No royalties, no fees, no registration
- Meritocracy
 - The more you've done, the more you can do

JXTA Community Momentum

www.jxta.org (4/2001 – 8/2003)

- 1,350,000+ downloads
- 80+ projects
- 14,000+ members
- Active discussion groups
- Community actively contributing and integrating technology



Please join our efforts!

Looking Ahead

- Enhanced Performance, Scalability, and Security
- New services and opportunities
 - E.g. identity, integration with Web services, content management, digital rights, presence
- Specification standardization through public organization



Problems JXTA Solves

- Provides a set of building blocks and infrastructure that provide a foundation for P2P applications
- Provides an open and interoperable set of protocols that do not have special licensing requirements
- Quick time to market for new products and services

What's In It for Linux Developers?

- Open Source Code! (that works across multiple platforms)
- Faster Time To Market for New Products
- Community of Open Source Developers
- Opportunity to "Steer the Boat"
- Perpetuate the value of Open Source development — Ensure Open Standards for P2P
- Access to Marketing and BD Resources

Summary

- Project JXTA is an open source platform for P2P applications – it is free!
- Project JXTA technology is language, operating system, network, and service agnostic.
- Project JXTA works on any network device – from cell phones to super servers
- Project JXTA has a large and active community at <http://www.jxta.org>



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