

# Introduction to JXTA

Notice the increasing compute power in smaller packages. Pervasive computing is a reality



How should tomorrow's applications be built to use these available resources? What is the right way to approach the problem?

**JXTA tries to answer these questions.**

# What JXTA is **NOT**

It is not a programming language

It is not an application

It is not a library of codes

**JXTA is a set of open protocols to connect small devices for collaborative work.**

# History

SUN Introduced JXTA in April 2001 to provide a common platform for P2P development. JXTA defines

## Concepts

Peers, peergroups, advertisements, modules, pipes, security

## Six core Protocols

Discovery, Resolver, Information, Endpoint  
Routing, Rendezvous, Pipe

## Network Architecture

Communication models (unicast, propagate etc)

# How does JXTA enable P2P applications?

- Find other peers (even across firewalls)
- Share documents with other peers
- Find content
- Create a group of peers to provide a service
- Monitor peer activities remotely
- Securely communicate with other peers

# What is a Peer?

- Networked device implementing one or more of the JXTA protocols
- Asynchronous independent operation
- Unique Peer ID
- Publishes network interface as a unique *endpoint*. Peer endpoints are used to establish direct point-to-point connections between two peers.

# What is a Peer Group?

A group of JXTA Peers that have agreed upon a common set of services

Peers self-organize into **peer groups**, each identified by a unique peer group ID.

Peers may belong to **more than one peer groups simultaneously**

Peer groups create

- Secure environment
- Scoping environment
- Monitoring environment

# ***What is a **module**?***

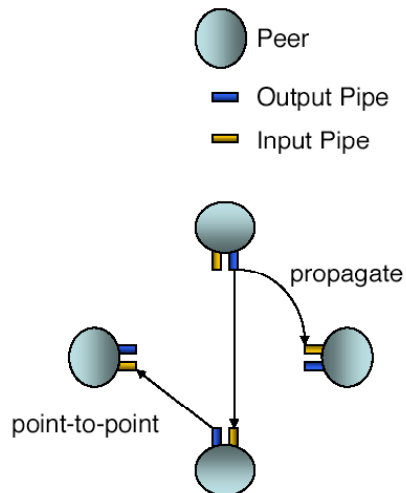
Implements a behavior or functionality  
Enables component-oriented programming  
of an application

The Module abstraction includes

- Module Class: the general class or type of behavior
- Module Specification: the specific aspect of the behavior
- Module Implementation: the actual reference

# What is a Pipe?

Pipes are virtual communication channels that can connect peers that do not have a direct link (overlay link)



- *Point-to-point Pipes*
- *Propagate Pipes*
- *Secure Unicast Pipes*

# What are Advertisements?

JXTA protocols use **advertisements** to describe and publish the existence of a peer's resource

Language-neutral metadata structures:  
Represented as XML documents

Eight core advertisements

- Peer Advertisement
- PeerGroup Advertisement
- Pipe Advertisement
- Module Class Advertisement
- Module Spec Advertisement
- etc etc