




Aglets

Puppies Workshop, 12/2/97

Mike Bursell

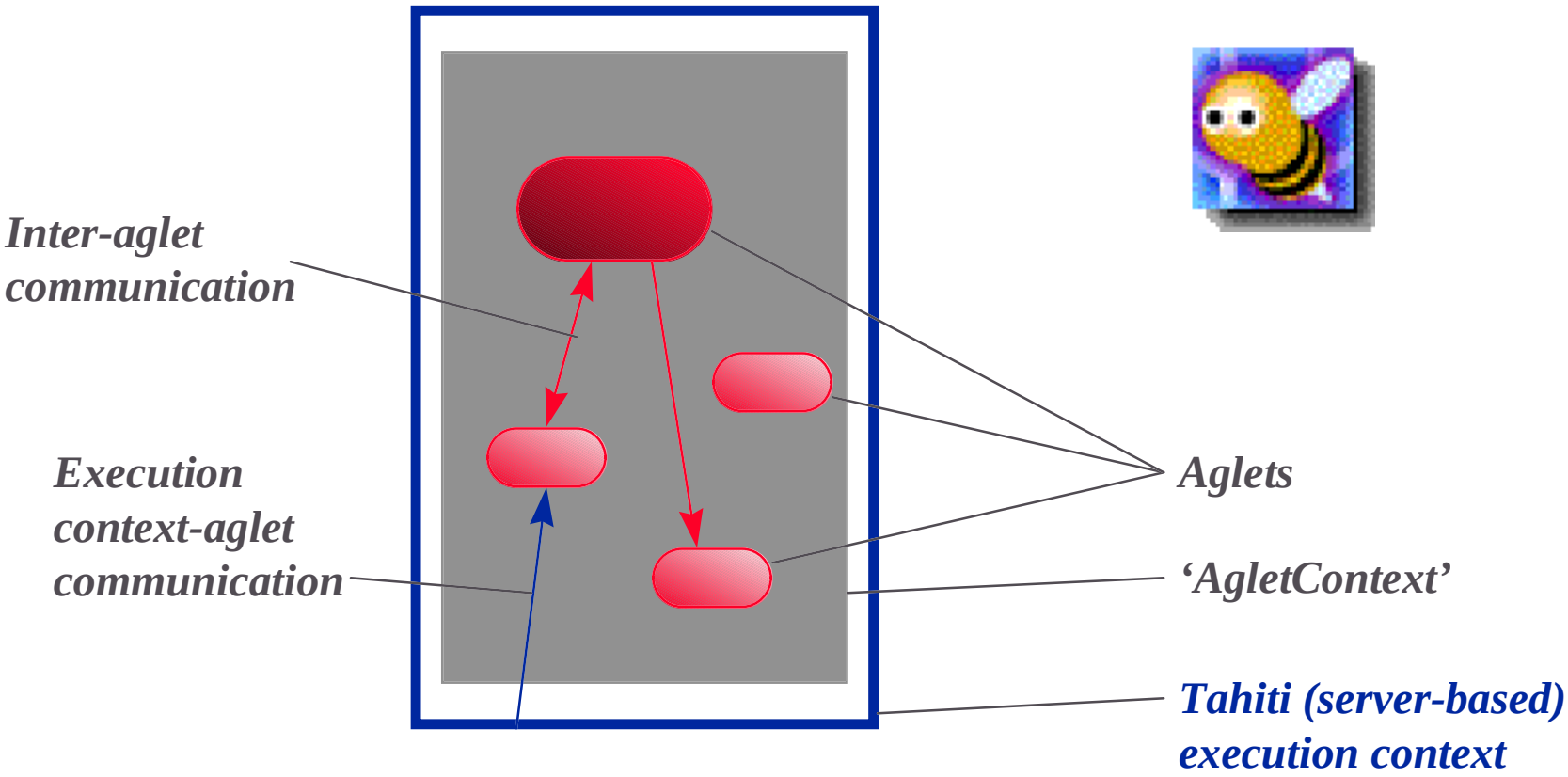
Aglets - background

- Being developed by IBM
  - Danny B. Lange, Tokyo Labs
  - Aware of user community - react & proact
    - no, really…!
- Java
  - Security issues, both -ve & +ve
  - Platform independence
- User community
  - Rapid growth
  - Wide membership

What is an aglet?

- Mobile code in Java
- Globally uniquely named
- Accessible to other aglets via a Proxy aglet
- Exists within an ‘execution context’
- Can migrate across the network, carrying its state

Aglets and their context



IBM's design goals for Aglets

- Simplicity and extensibility
  - It should be easy for the Java programmer to write aglets.
- Platform independence
  - Aglets should be able to run on any agent host that supports JAAPI.
- Industry standard:
  - JAAPI should become an industry standard.
- Security
  - Untrusted aglets should not be considered a security risk for the agent host.

J-AAPI & AWB

- Java Aglet API White Paper - currently in draft
  - http://www.trl.ibm.co.jp/aglets/aglets/JAAPI-whitepaper.html
- Aglets workbench - alpha4b release
  - Windows NT
  - SPARC/Solaris
  - AIX (limited)
  - OS/2 (limited)
  - MacOS (expected)

What can an aglet do?

- The aglet's options -
  - move & be moved (using RMI)
  - preserve state
  - resume execution
  - send and receive messages
  - follow an itinerary
  - clone itself
  - activate/deactivate

Aglet events

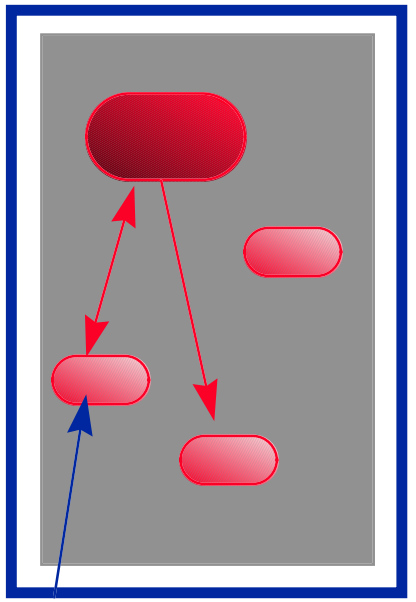
The event	As the event takes place	After the event has taken place
Creation		onCreation()
Cloning	onCloning()	onClone()
Dispatching	onDispatching()	onArrival()
Retraction	onReverting()	onArrival()
Disposal	onDisposing()	
Deactivation	onDeactivating()	
Activation		onActivation()
Messaging	handleMessage	

Execution contexts

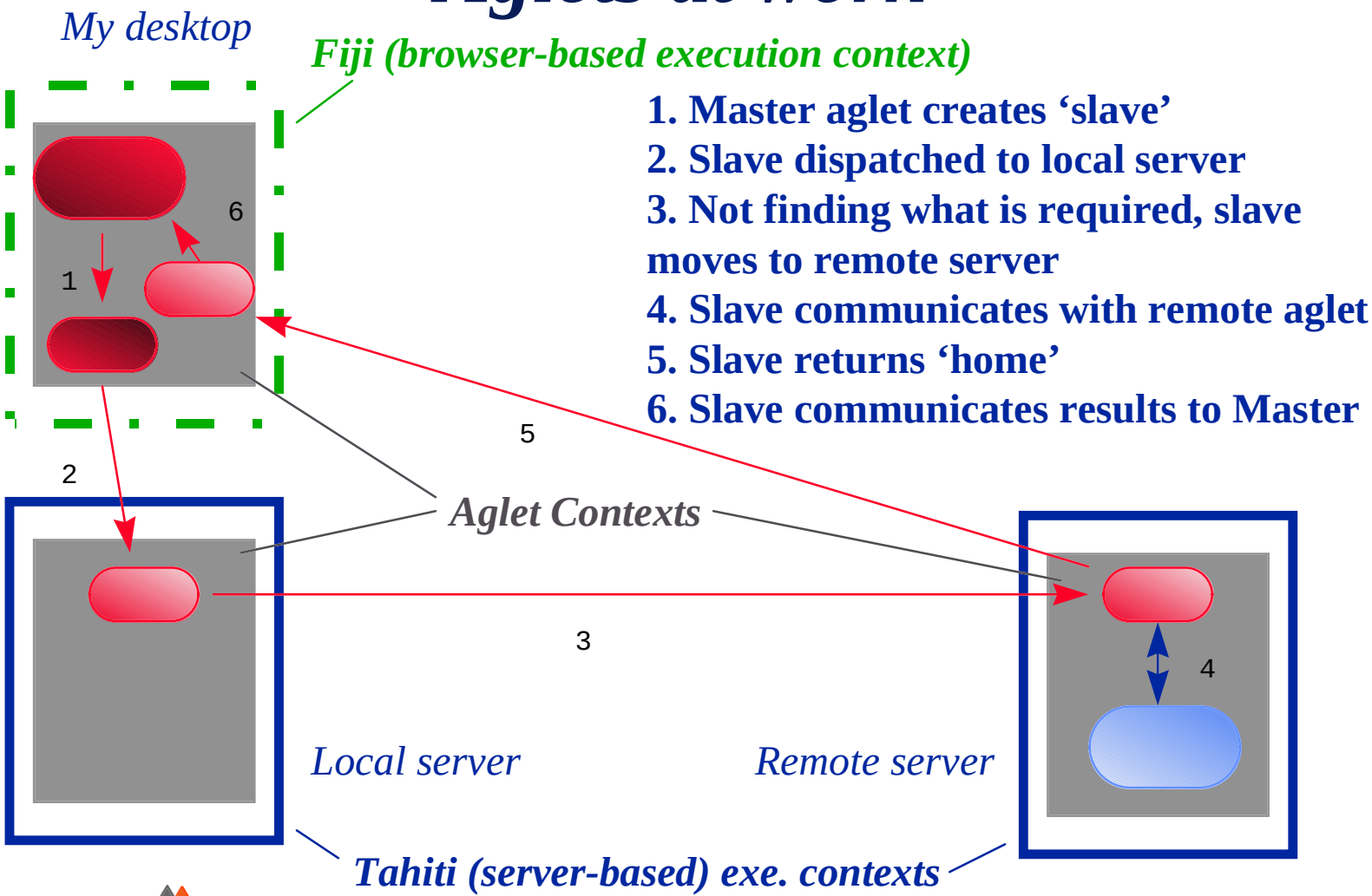
- A type of Java Virtual Machine (JVM)
- Act as hosts for aglets
- Deal with naming, dispatching, cloning, etc.
- Coordinate movement to other execution contexts
- Implement security policies
- Allow user interaction (via frames, panels, etc.)
- Provide AgletContext

Tahiti & Fiji

- Tahiti
  - server-based execution context
  - an execution context for Aglets
  - provides a shared context for communication
  - provides links to databases, file-systems, etc.
- Fiji
  - execution context within a browser
  - not currently available (requires serialization)



Aglets at work



Security

- The concept of ‘trusted’ vs ‘untrusted’ aglets
  - ‘signed’ aglets - trusted/untrusted
  - created in the same domain - trusted
- Access to file system dependent on trust relationship
- Access to aglet properties and details dependent on trust relationship
- Java 1.1 - signed code
- Status currently under review

To come

- Fiji - browser-based execution context
- Jodax - database access via Tahiti
- Firewall ‘tunnelling’
- Signed, trusted code - following Java 1.1
- Documentation!

Community of interest

- Rapid growth in mailing list
- Academic
- Commercial & military
  - IBM, Microsoft, Novell, Corel, Hitachi, Fujitsu, NEC, Hyundai, MCI, applications development, aerospace, navy
- Job opportunities already advertised!

Implementing Agents - Aglets from IBM

- Are we happy with the technology?
- What extra security do we need to implement?
- How well does it support our infrastructure model?
- What involvement do we want in the evolving standard?