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Using ECF for Lightweight Distributed Team Collaboration

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http://www.eclipse.org/ecf

Teams they are a changin'

- Membership
  - Distributed, Multiple Groups, Cross-organizational
  - Diverse Skills, Backgrounds, Cultures
- Project Organization
  - Flat (ter), More team-driven, Voluntary
  - Project Leadership Has Less Control Over Team
- Community Expectations
  - Open Planning
  - Responsiveness to Community Contributions
    - Bug reports
    - Contributions

Communication/Collaboration Implications

- Interoperability
  - People use Multiple Communication Tools
  - People in multiple groups
  - Multiple Applications, Multiple Services, Multiple Protocols
- Integrate
  - Max 5 UIs
  - Tools – Workbench, Mylyn, Editors, Debuggers, Reporting, RCP apps, other tooling, etc.
  - 'Lightweightness'
- Extensible
  - Team-specific Tools
  - Support for specific processes/approaches/conventions
  - Integration among multiple tools

ECF Goal

Lower Communication Barriers
in order to
Increase Team Productivity
Increase Team Trust
Increase Community Participation

by providing

Interoperable, Integrated, Extensible Framework

Team Productivity: Diversity Trumps Ability

The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies

- Conditions
  - High-performing individuals
  - Difficult problems
- Good Diversity
  - Cognitive Diversity: Think Different
  - Leads to more varied 'team toolboxes'
  - Avoid Local Maxima
- Bad Diversity
  - Fundamental preferences

How to Exploit Diversity

- Make it Easy for 'Outsiders' to Communicate/Contribute
  - Client Interoperability
- Communicate Publicly with Community
  - IRC, IM/Conference Calls, ECF Collaboration Groups, etc.
  - Solicit Contributions
    - Bugzilla/BugDay/IRC, etc.
- Expose Unfinished Work/Problems
  - Milestones, Dev Mailing List, Wiki, Bugzilla ALL GOOD
  - IM/Chat
  - Enable Opportunities for External Contributions

Tools and UI Integration

- Real-Time Communication Integrates Well With
  - Workbench (sharing resources)
  - Bug Tracking (Mylyn sharing tasks)
  - Conferencing
  - Shared Editing
  - Build/Deploy Infrastructure (notifications, etc)

Demos

- IM/Chat
  - Multi-Protocol, public services, sharing info as well as direct communication
- Real-Time Collaboration
  - Integrate communication into tooling
  - Provide common UI
- Shared Editing
  - Use Case: Code Review and others

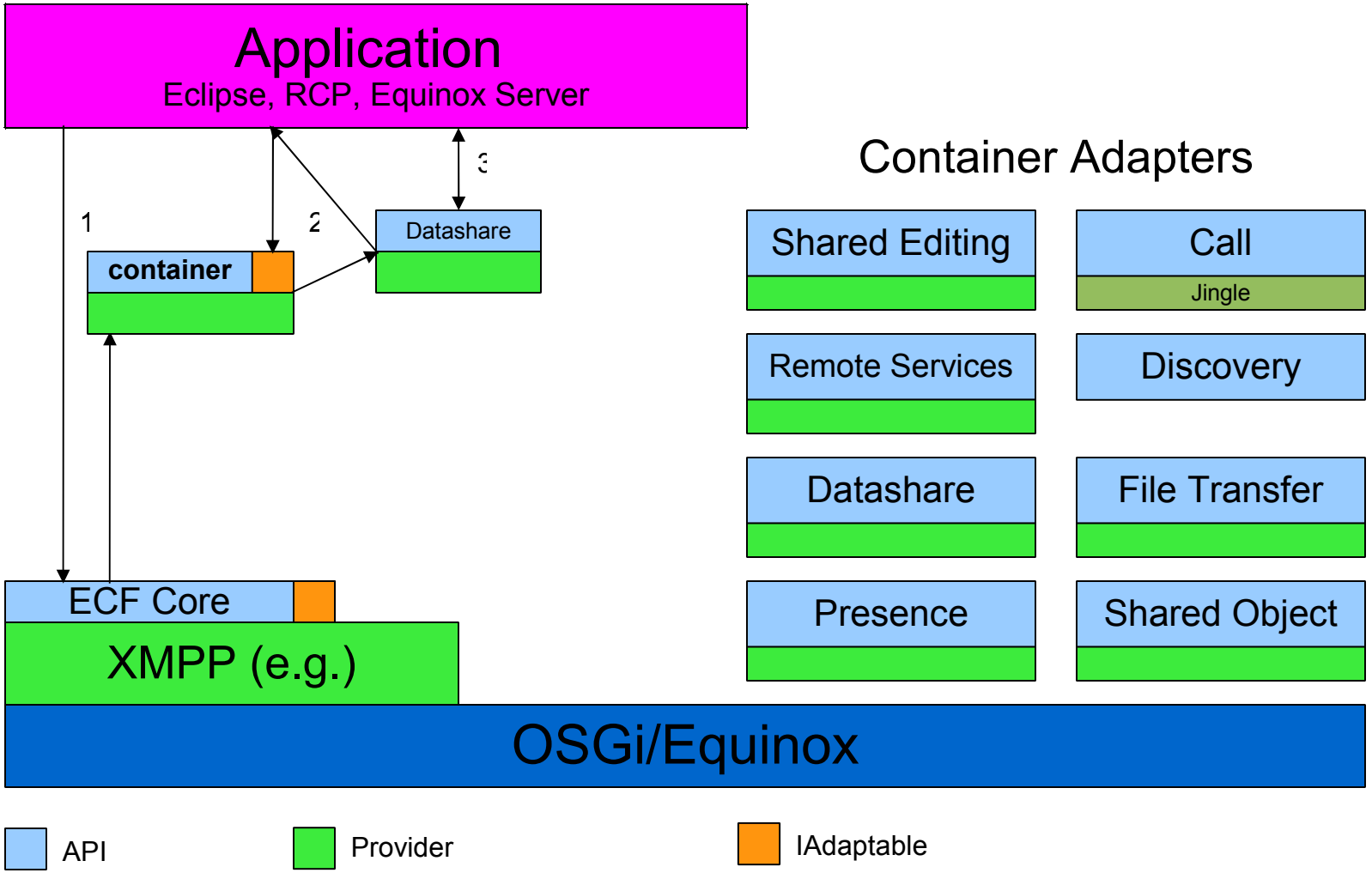
Can Absence Make a Team Grow Stronger?

- Answer: yes
  - Rule 1: Exploit Diversity
  - Rule 2: Use Technology to Simulate Reality
    - Virtual Spaces for Team and Community
  - Rule 3: Hold Team Together: Build Trust
- See Bjorn's Blog Entries

Extensibility

- APIs through Adapters
  - Core: 2 bundles ~120k
  - API plugins/bundles – aka Container Adapters
- Providers Implement: core + 0 or more Adapters
- Extensibility: Exploits Diversity In Community
  - Shallow or Deep Additions
  - Sense of Ownership

ECF Provider Architecture



In Code

- `container = ContainerFactory.getDefault().createContainer();`
- `ds = (IChannelContainerAdapter) container.getAdapter(IChannelContainerAdapter.class);`
- `IChannel channel = ds.createChannel(...)`

Dynamic Service Discovery

- org.eclipse.ecf.discovery
  - IDiscoveryContainerAdapter
    - Adapter from IContainer
  - Service Discovery API
    - Properties for existing service types: ITunes, http, etc.
    - Register new types: updatesite, remotesvcs, etc.
  - Two Providers So Far
    - Bonjour
    - SLP (RFC 2608)

Demo

- Dynamic Service Discovery
  - Update site service
  - Other (non-Eclipse services)

Asynchronous File Transfer

- org.eclipse.ecf.filetransfer
  - IRetrieveFileTransferContainerAdapter
    - Adapter from IContainer
  - API
    - sendRetrieveRequest
    - Asynchronous notifications to provided listener
      - Start,Data,Done
  - Several Providers
    - URLConnection (JRE), Apache httpclient 3.0.1, SCP/SSH/JCraft, Eclipse File System
    - Uses Jobs API
  - Also have send and browse API
- Being used for p2

Demo

- File transfer
  - Multi-protocol
  - Embeddable into other plugins (e.g. P2)

Remote Services

- org.eclipse.ecf.remoteservice
  - IRemoteServiceContainerAdapter
    - Adapter from IContainer
  - API
    - Looks very much like **OSGi Services**
    - **Clients have choice**
      - **Proxy (transparent)**
      - **IRemoteService (explicit)**
        - Asynchronous (Listener) Invocation
        - Futures
  - Providers
    - R-OSGi, JMS ActiveMQ/BEA, ECF generic, JavaGroups, Riena
    - Others (?)

Demo

- Remote Services
  - Transparent and not-transparent for different use cases
  - Multi-protocol
  - Easy to add own service types/discover, access

Summary

- ECF for Open Project Communications
  - Build Diversity, Trust, and Community
  - Technology
    - Interoperability
    - Integration
    - Extensibility
  - Project: http://www.eclipse.org/ecf
  - Wiki: http://wiki.eclipse.org/Eclipse_Communication_Framework_Project
  - IRC: irc://irc.freenode.net/eclipse-ecf
- http://www.bobdylan.com/songs/times.html