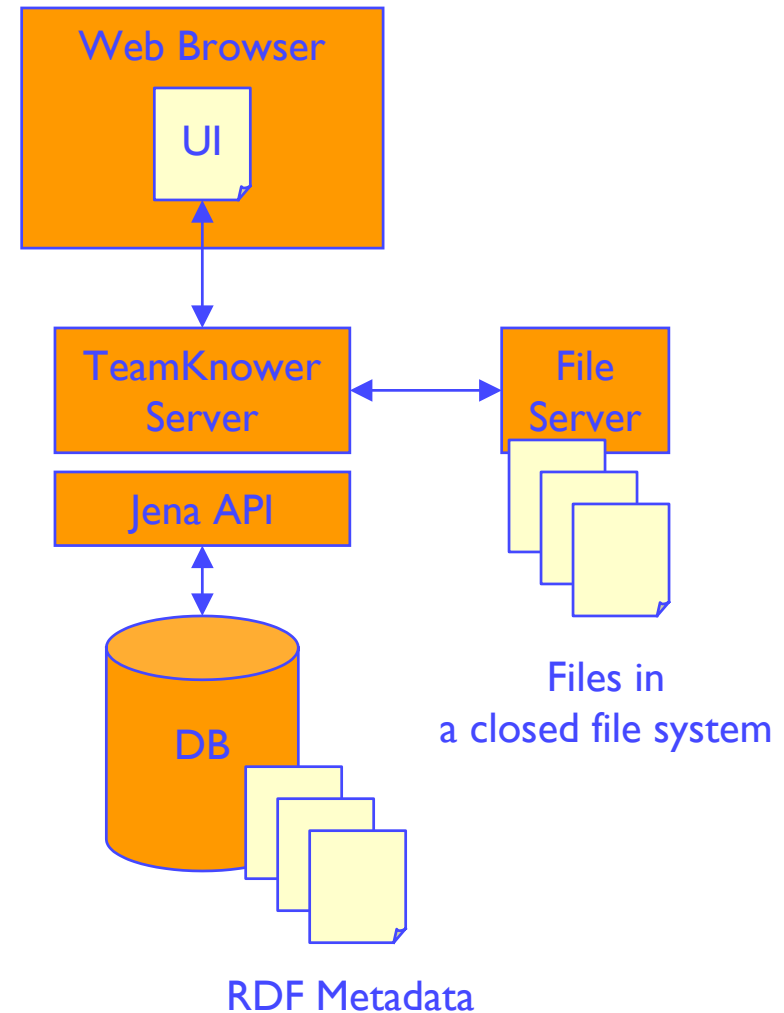# MINUTOR

Company Overview

Kari Koivuniemi
Head of R&D
Minutor Ltd

About Minutor

- Founded: 2000
- Location: Tampere, Finland
- FIPA Associate member
- Organization: 10+ people, ca. 50% working in Research & Design
- Business idea
  - "To help companies to increase productivity of their knowledge intensive processes by offering consulting and complete knowledge engineering solutions."
- Services:
  - Business process consulting: Sales process, Product development process, Vision & strategy process
- Products:
  - TeamKnower knowledge management tool
  - AgentDock FIPA-compliant agent platform
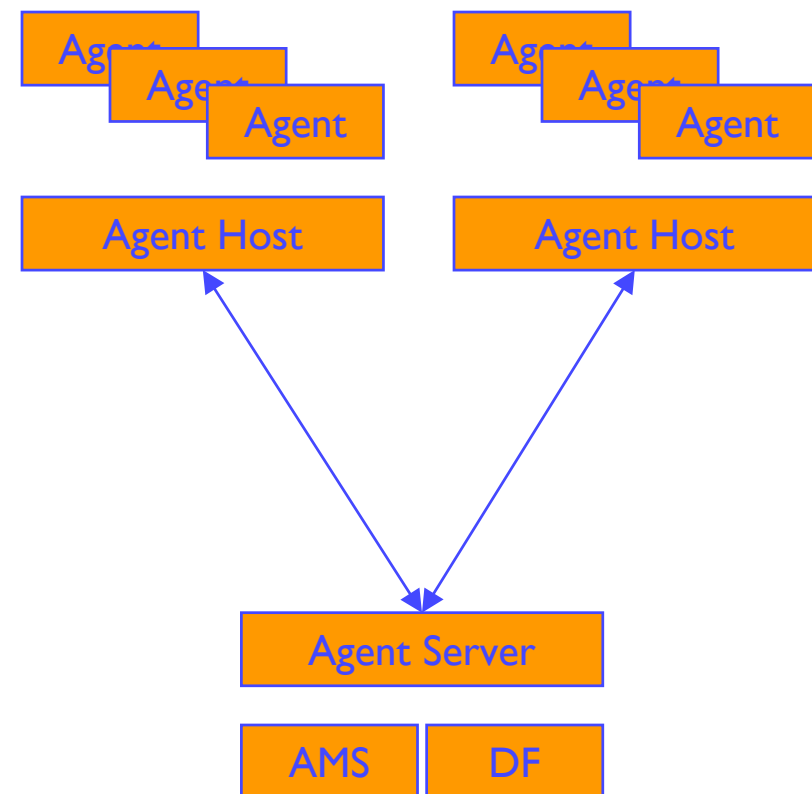 - Agent-based business processes

TeamKnower

- Knowledge management system with web-browser user interface
- Collects RDF-metadata descriptions of knowledge objects represented in a directory structure
- Uses Jena API, implemented in HP Labs, to process and store RDF-descriptions
- Metadata is stored into relational database (PostgreSQL, MySQL)
- If a physical file is associated with the knowledge object, it is stored in separate file repository
- Release in October 2002

Web Browser

UI

TeamKnower Server

File Server

Jena API

DB

Files in
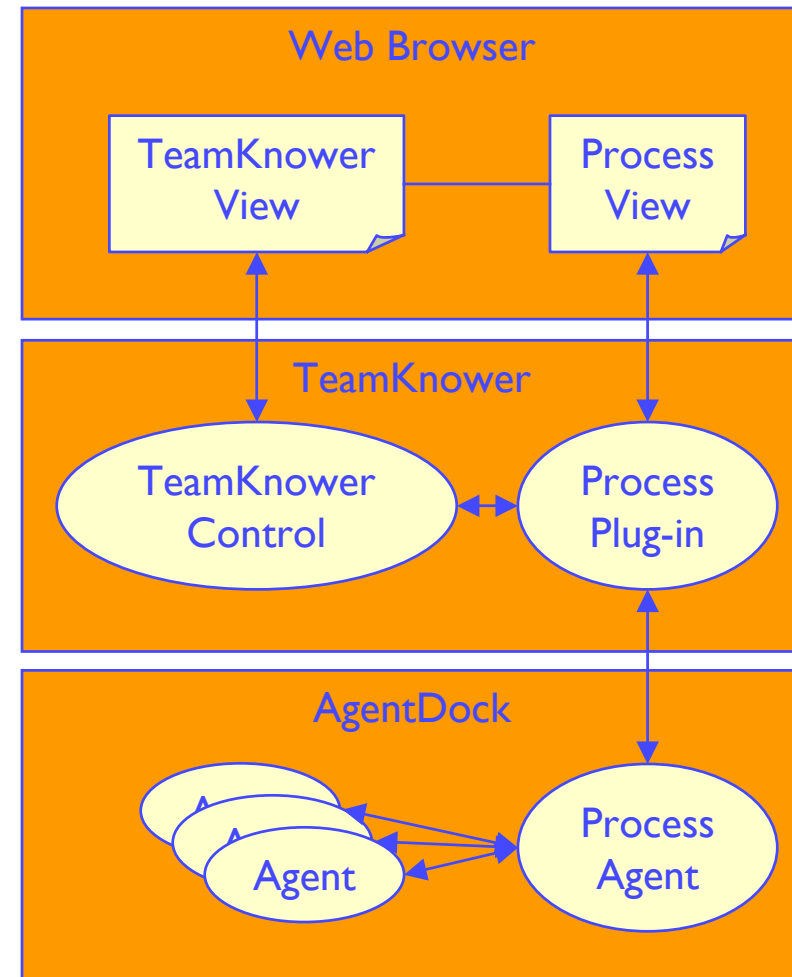a closed file system

RDF Metadata

AgentDock

- Distributed agent platform
- Based on FIPA Abstract Architecture specification
- Pure Java implementation
- Complies to J2EE-architecture
- Not yet publicly available
- Will be used as project work environment in "Software Agents" –course held in Tampere University in Autumn 2002

Agent	Agent
Agent	Agent
Agent	Agent

| Agent Host | Agent Host |

| Agent Server |

| AMS | DF |

Agent-based Processes

- TeamKnower extension that allows to add context specific processes into the knowledge management tool
- Processes are implemented with software agents and they operate on the knowledge objects and related metadata
- A fairly simple example is a meeting process that is activated when an agenda is added into the TeamKnower repository
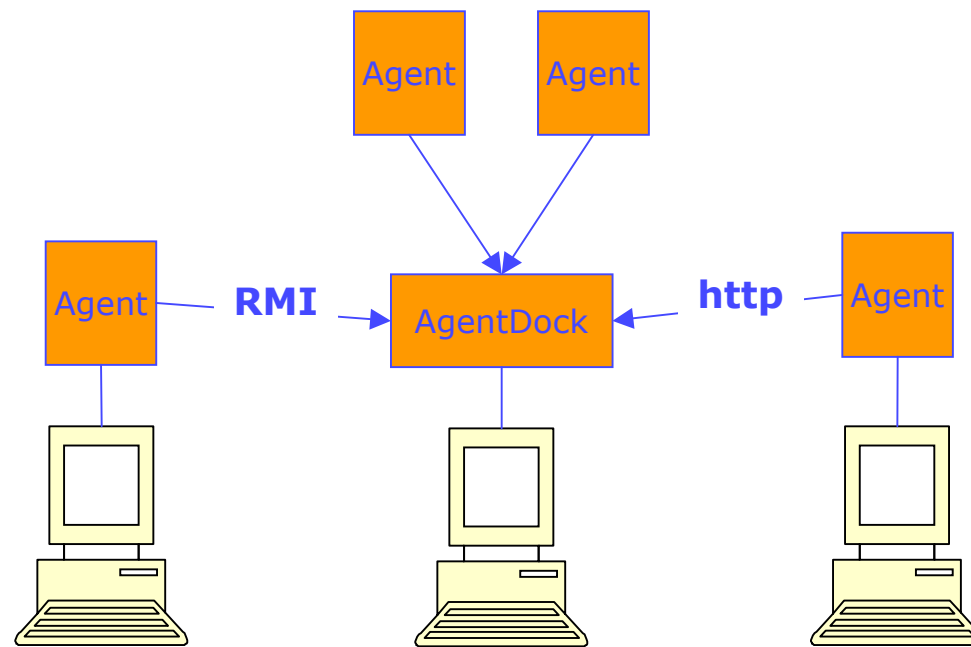- First release scheduled in 2003

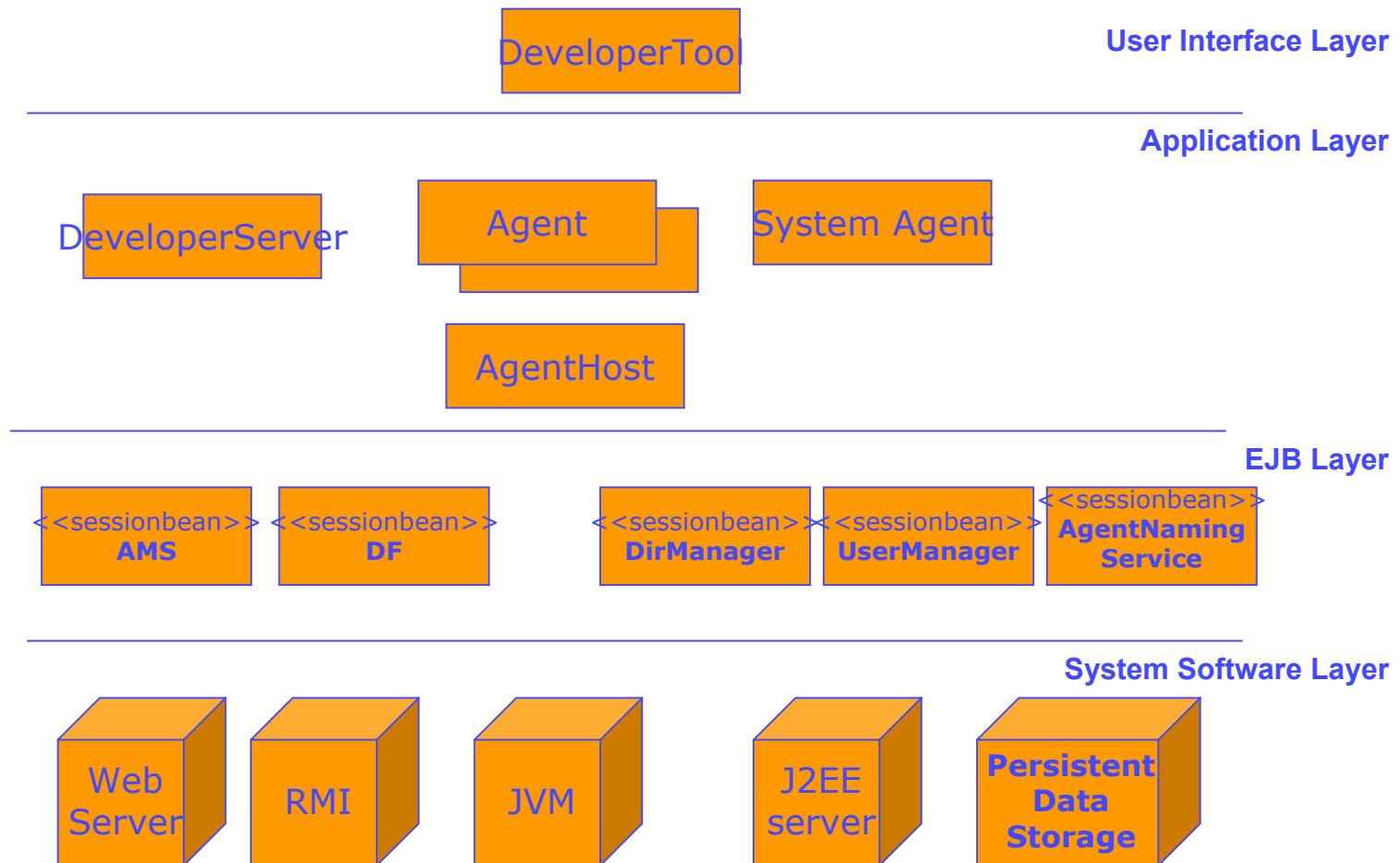**Web Browser**

TeamKnower View — Process View

TeamKnower

TeamKnower Control ↔ Process Plug-in

AgentDock

Agent — Process Agent

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AgentDock Overview

Olli Ström
Software Architect
Minutor Ltd

Distributed agent system

Agent Agent

Agent RMI AgentDock http Agent

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AgentDock Implementation model

DeveloperTool

User Interface Layer

Application Layer

DeveloperServer

Agent

System Agent

AgentHost

EJB Layer

| <<sessionbean>> **AMS** | <<sessionbean>> **DF** | <<sessionbean>> **DirManager** | <<sessionbean>> **UserManager** | <<sessionbean>> **AgentNaming Service** |

System Software Layer

Web Server

RMI
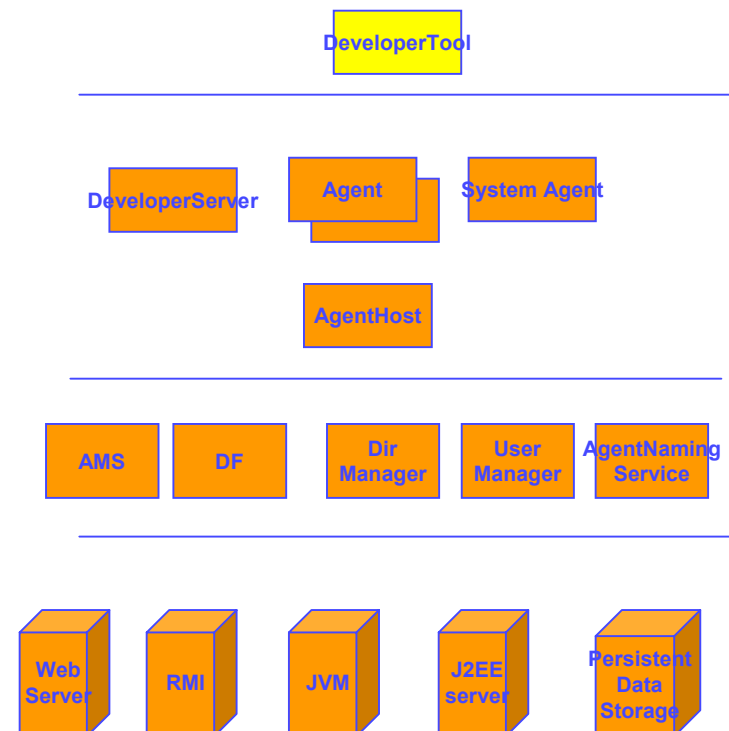
JVM

J2EE server

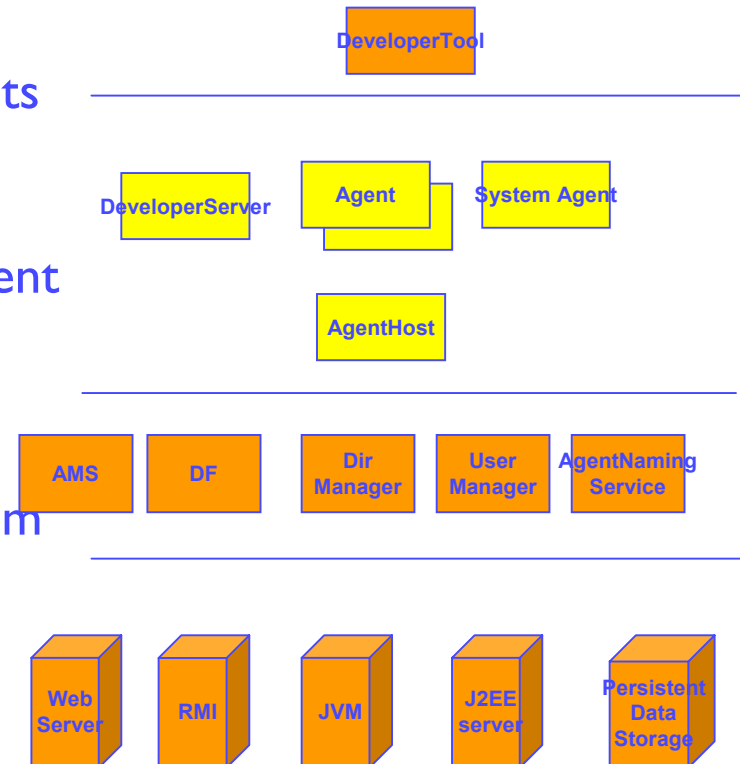**Persistent Data Storage**

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User Interface Layer

- Developer Tool
  - Collection of jsp-pages
  - Gives the system administrator / user the possibility to control the AgentHost system
  - Start, stop and restart the system
  - Add, modify and delete Agents
  - Modify AgentHost services
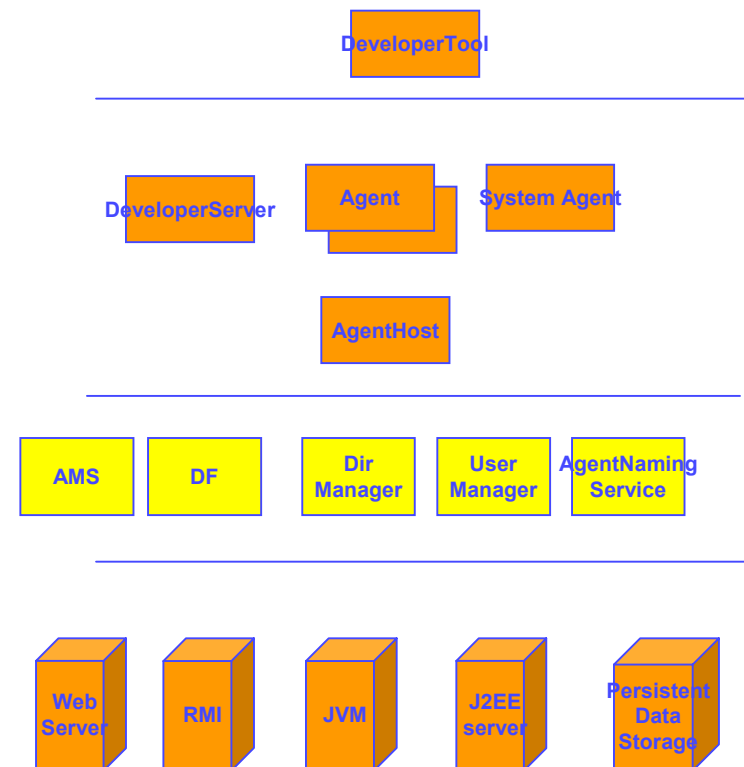   - transports
    - encodings

DeveloperTool

DeveloperServer   Agent   System Agent

AgentHost

AMS   DF   Dir Manager   User Manager   AgentNaming Service

Web Server   RMI   JVM   J2EE server   Persistent Data Storage

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Application Layer

- ## DeveloperServer
  - Implements the user access point to the AgentHost system
- ## AgentHost
  - Container program for AgentDock agents
- ## Agent
  - reside on a particular AgentHost
  - All agents are subclasses of Abstract Agent base class, where the basic agent functionality is implemented
- ## SystemAgent
  - particular agents executing specific system functions eg. ACCAgent, EmailAgent

DeveloperTool

DeveloperServer | Agent | System Agent

AgentHost

AMS | DF | Dir Manager | User Manager | AgentNaming Service

Web Server | RMI | JVM | J2EE server | Persistent Data Storage
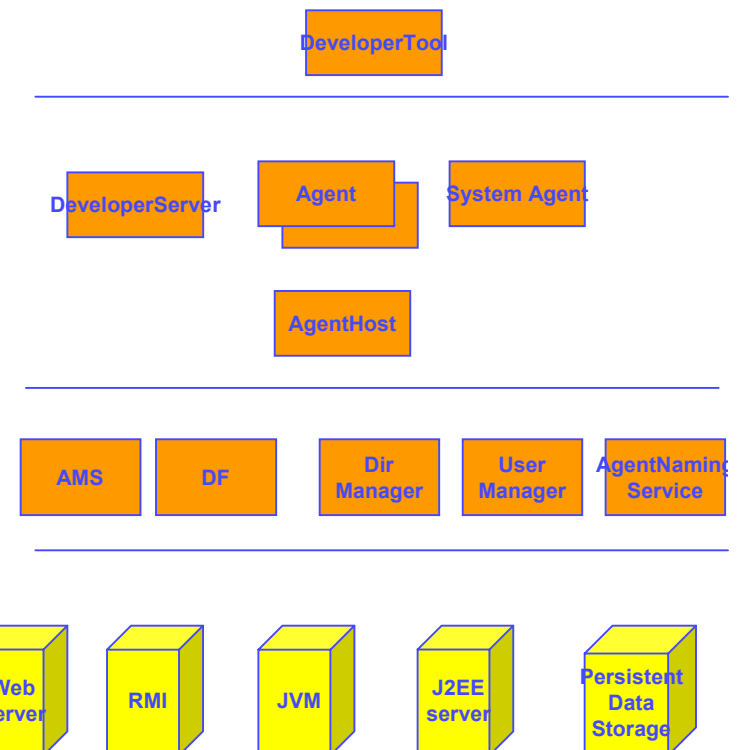
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EJB Layer

- AgentManagementSystem
  - provides white pages directory service for agents
- DirectoryFacilitator
  - "Yellow pages service"
- Other system services
  - DirManager (DAO-service)
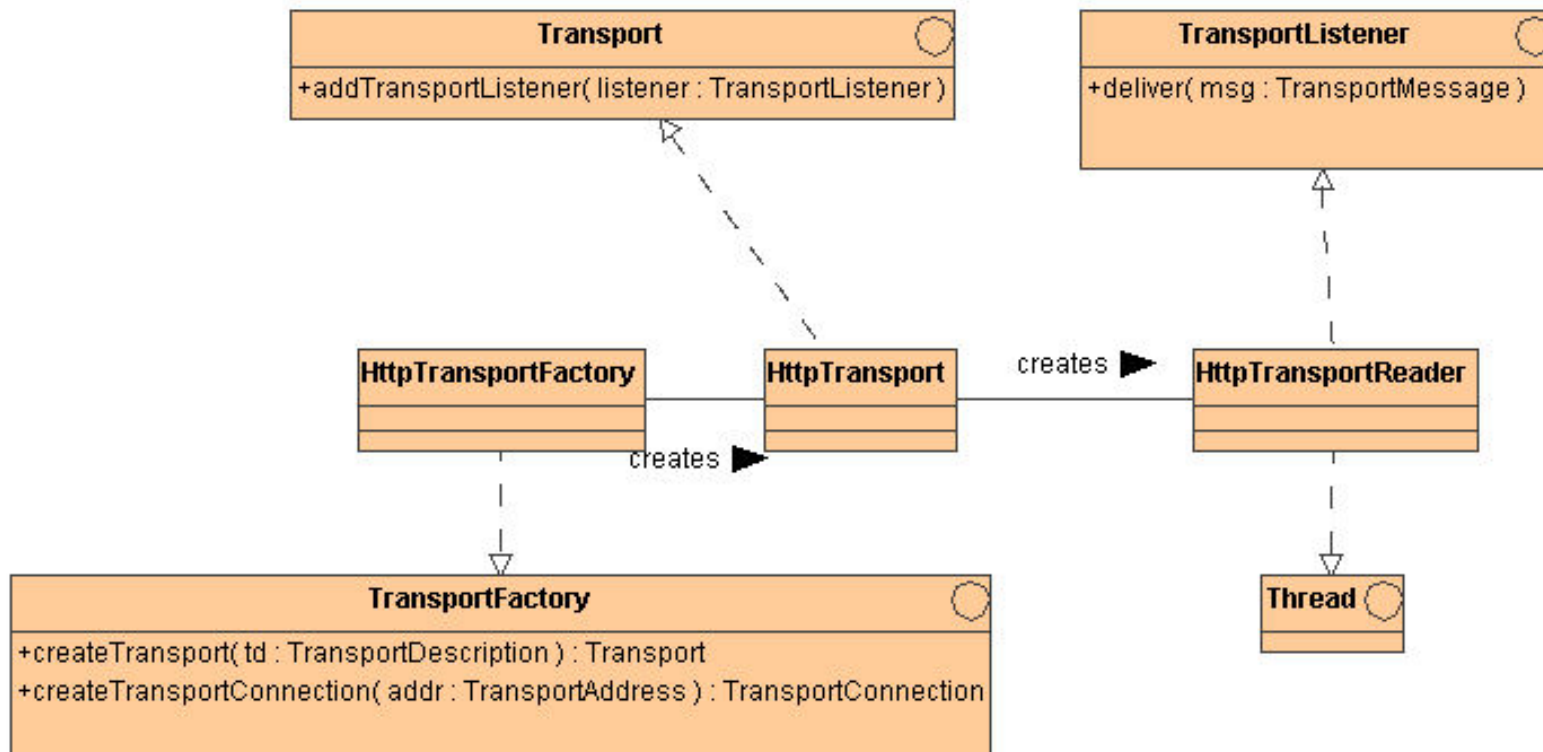 - UserManager
  - AgentNamingService

DeveloperTool
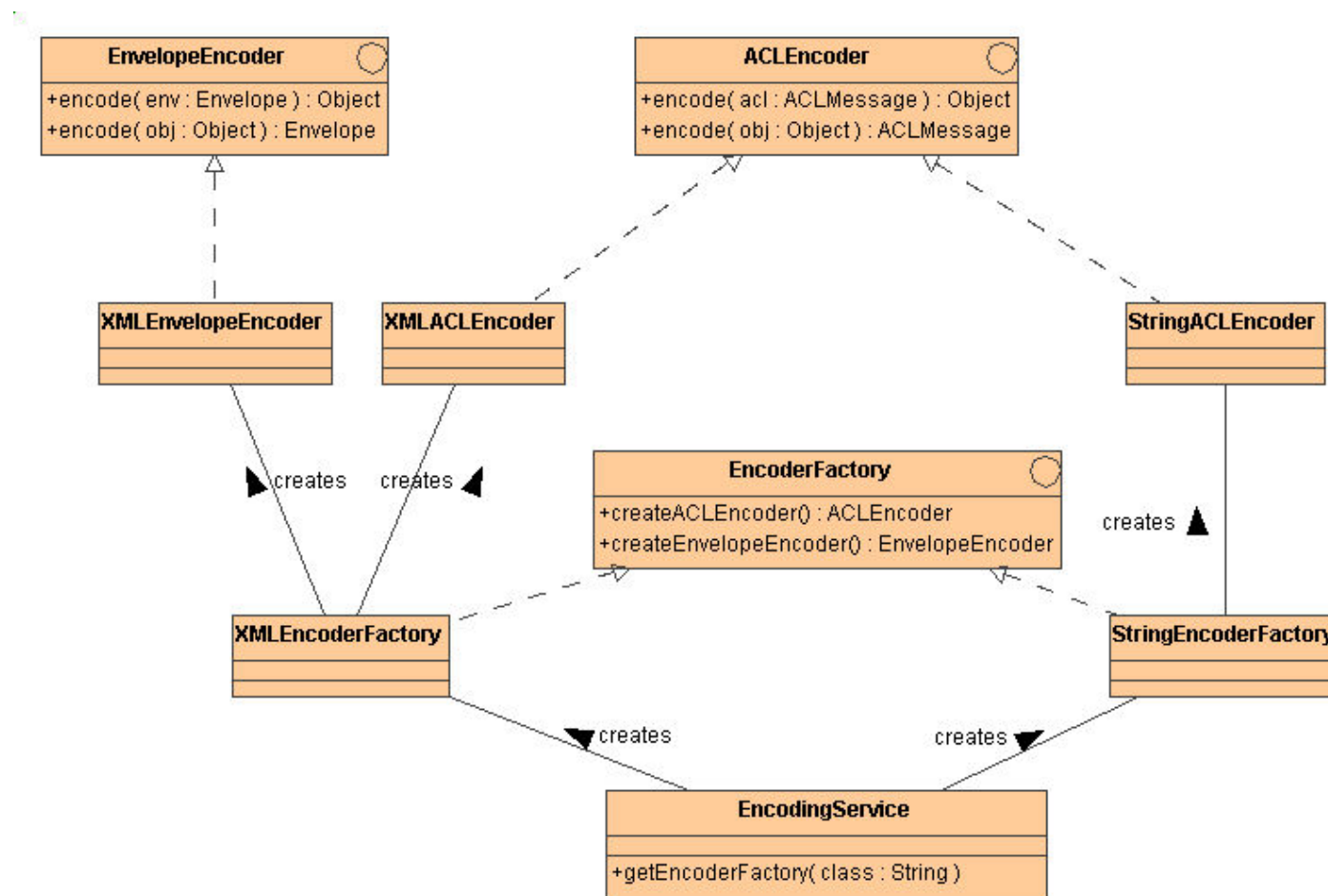
DeveloperServer | Agent | System Agent

AgentHost

AMS | DF | Dir Manager | User Manager | AgentNaming Service

Web Server | RMI | JVM | J2EE server | Persistent Data Storage

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System Software Layer

- ## Web Server
- ## RMI / JVM
- ## J2EE Server
  - – Weblogic, JBOSS tested
- ## Persistent Data Storage
  - – LDAP, MySQL etc..
  - – Connected through DAO-service

DeveloperTool

DeveloperServer   Agent   System Agent

AgentHost

| AMS | DF | Dir Manager | User Manager | AgentNaming Service |

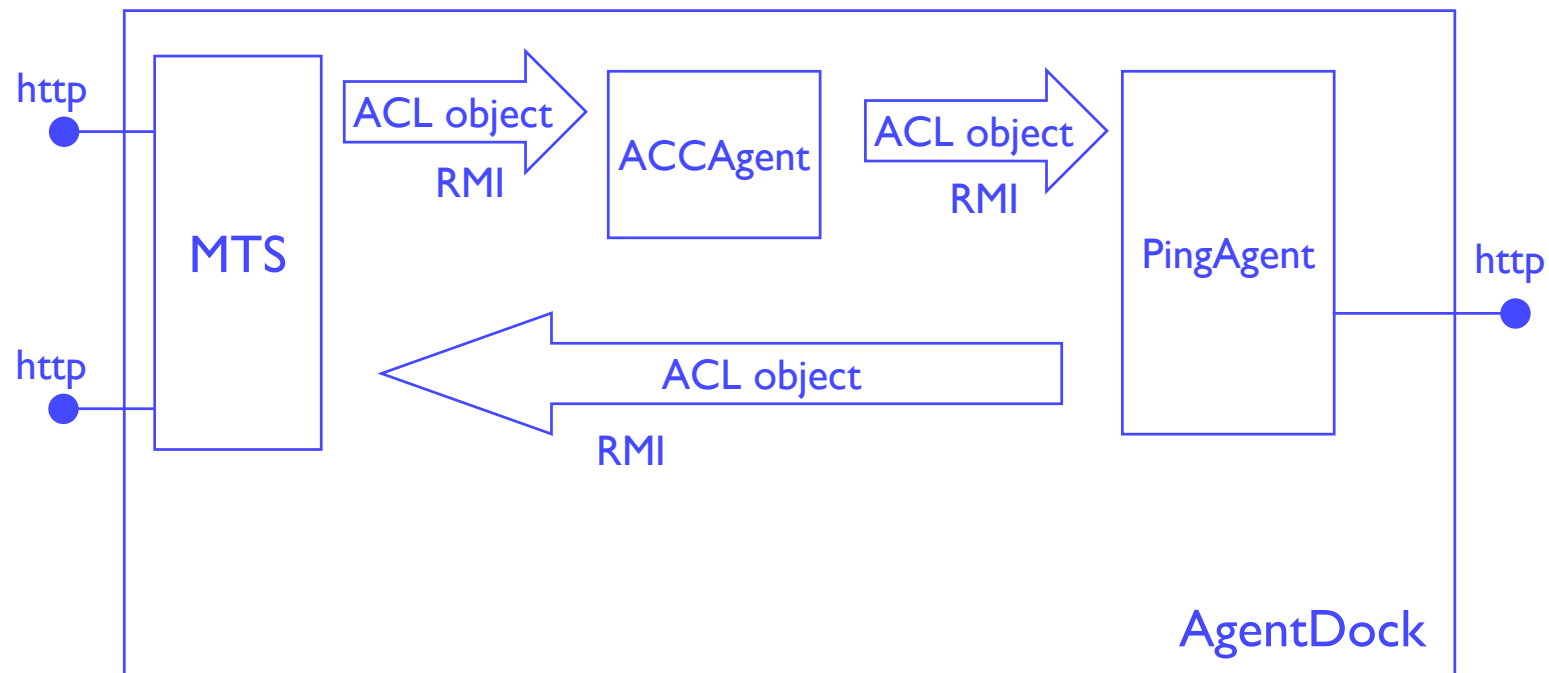| Web Server | RMI | JVM | J2EE server | Persistent Data Storage |

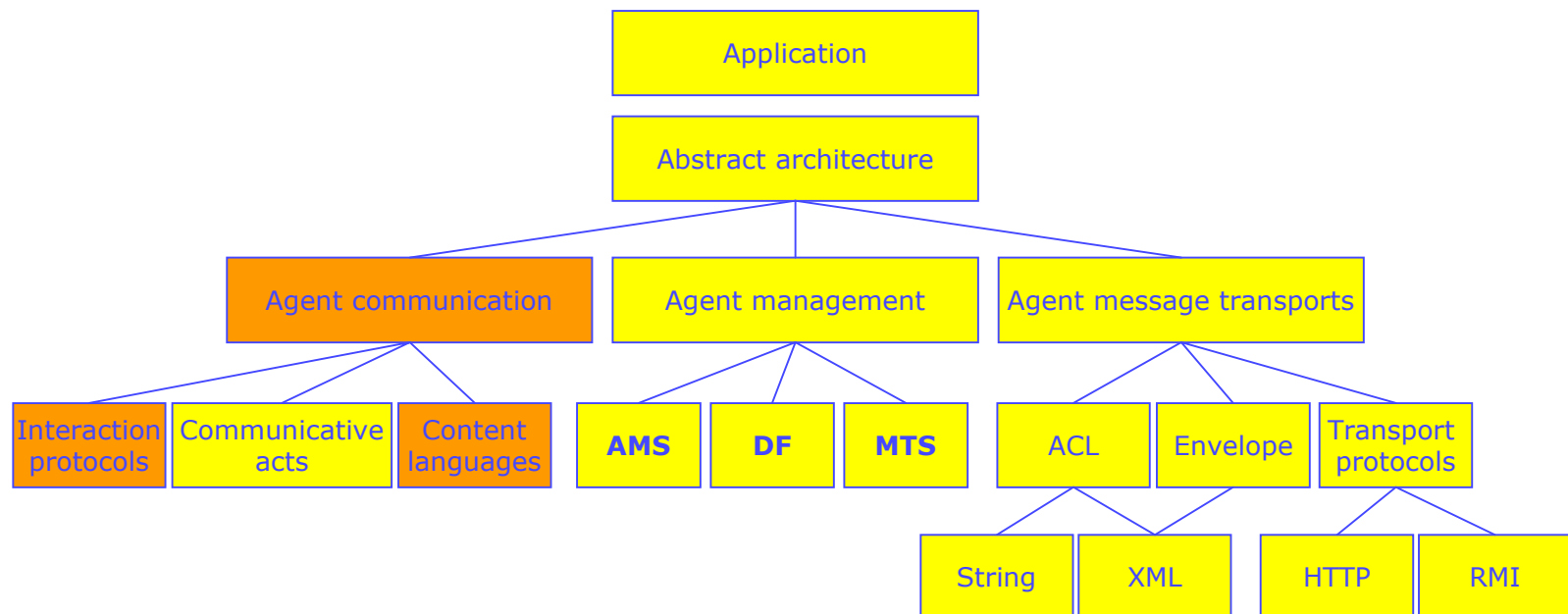# AgentDock Features

AgentDock Features cont..

Message Delivery

- AgentCities Ping functionality walkthrough

Agent domains implemented

ToBeDone

- FIPA interoperability testing
- Messaging Interoperability Service
  - providing message content translations
- Content Language Specification
  - using different content languages (FIPA-SL, KIF)
- Adhoc –system
  - providing functionality to locate Adhoc agent platform through lookup service
- J2EE Connector Architecture
  - connecting J2EE platform to heterogeneous EIS
- IIOP transport