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# Introduction to Jiro™ Technology

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# Agenda

- Jiro™ technology summary
- Jiro™ technology views and architecture
- Roles and interfaces
- Getting started with Jiro technology

# What Is Jiro Technology?

- Enabling management infrastructure based on the Java™ platform
- Designed to solve interoperability and management automation issues
- Focused on highly distributed environments, such as storage networks
- Enables advanced, intelligent management solutions based on industry-defined technologies

# Jiro Technology Summary

- “Everything” requires management
- Holistic approach to management
  - Centralized view
  - Interoperability
- Leverage people and machines effectively

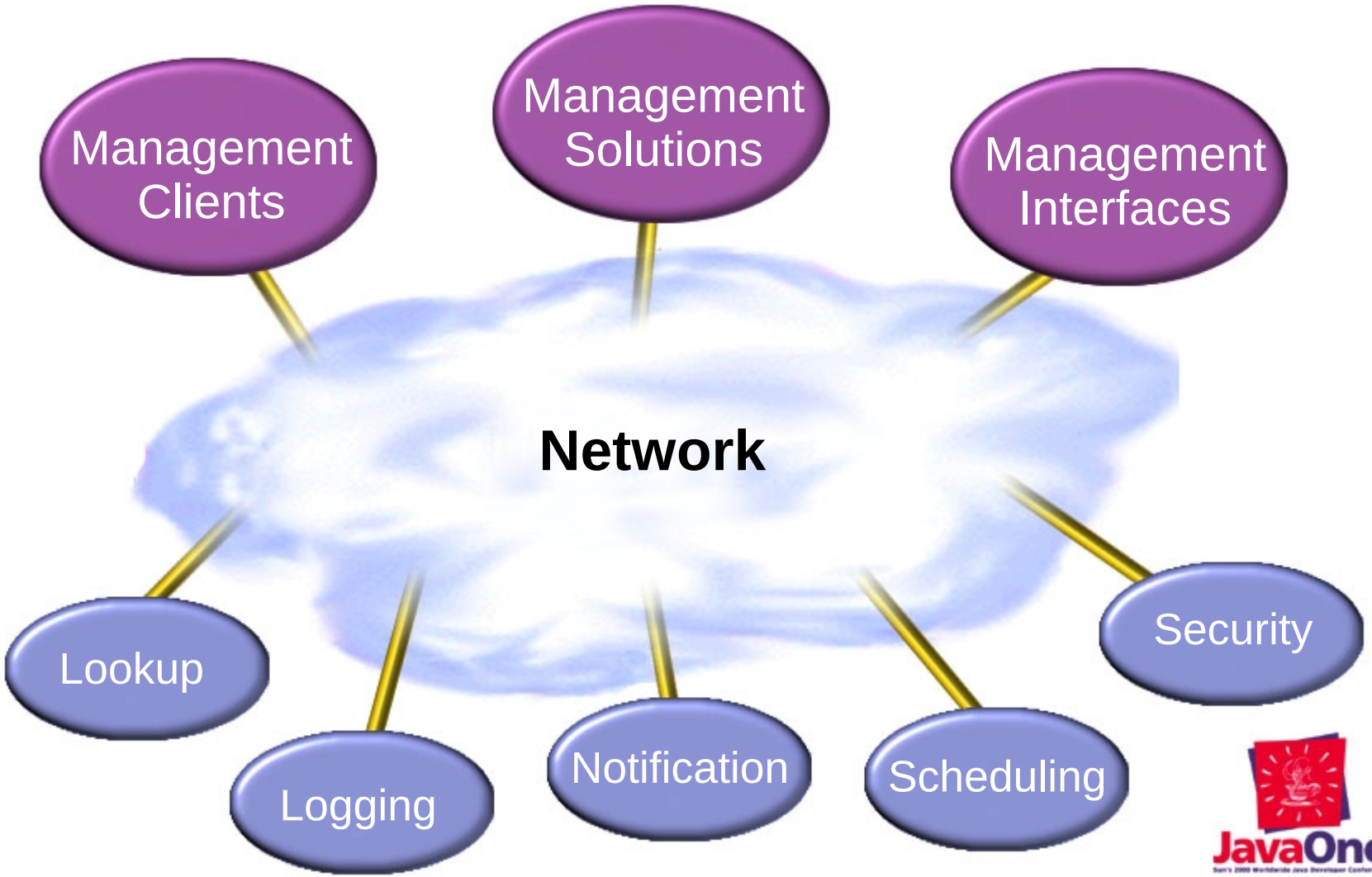
# Jiro Technology Summary

- **Reduce** the management cost
- **Reuse** existing components
- **Rapidly** respond to changes.
  - Minimize exposure
- **Roll forward** into the future

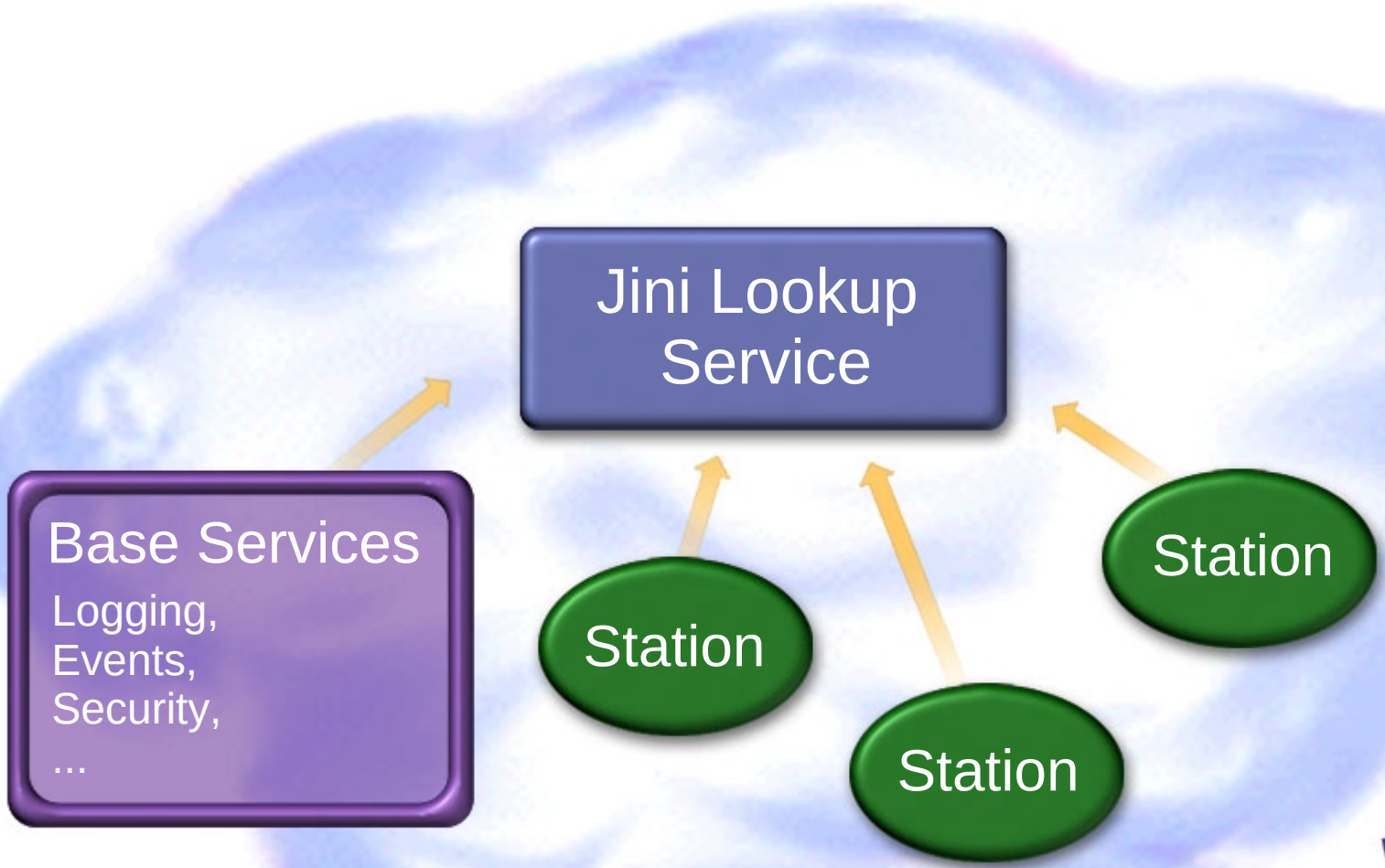
# Jiro Technology Enables Management

- Management Control—enables automated end-to-end management of heterogeneous storage networks
- Interoperability—enable interoperability among diverse applications, services and devices
- Adaptivity—enable devices to be easily added, removed or provisioned for service

# Network View



# Jiro Architecture

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# Three Tiered Management

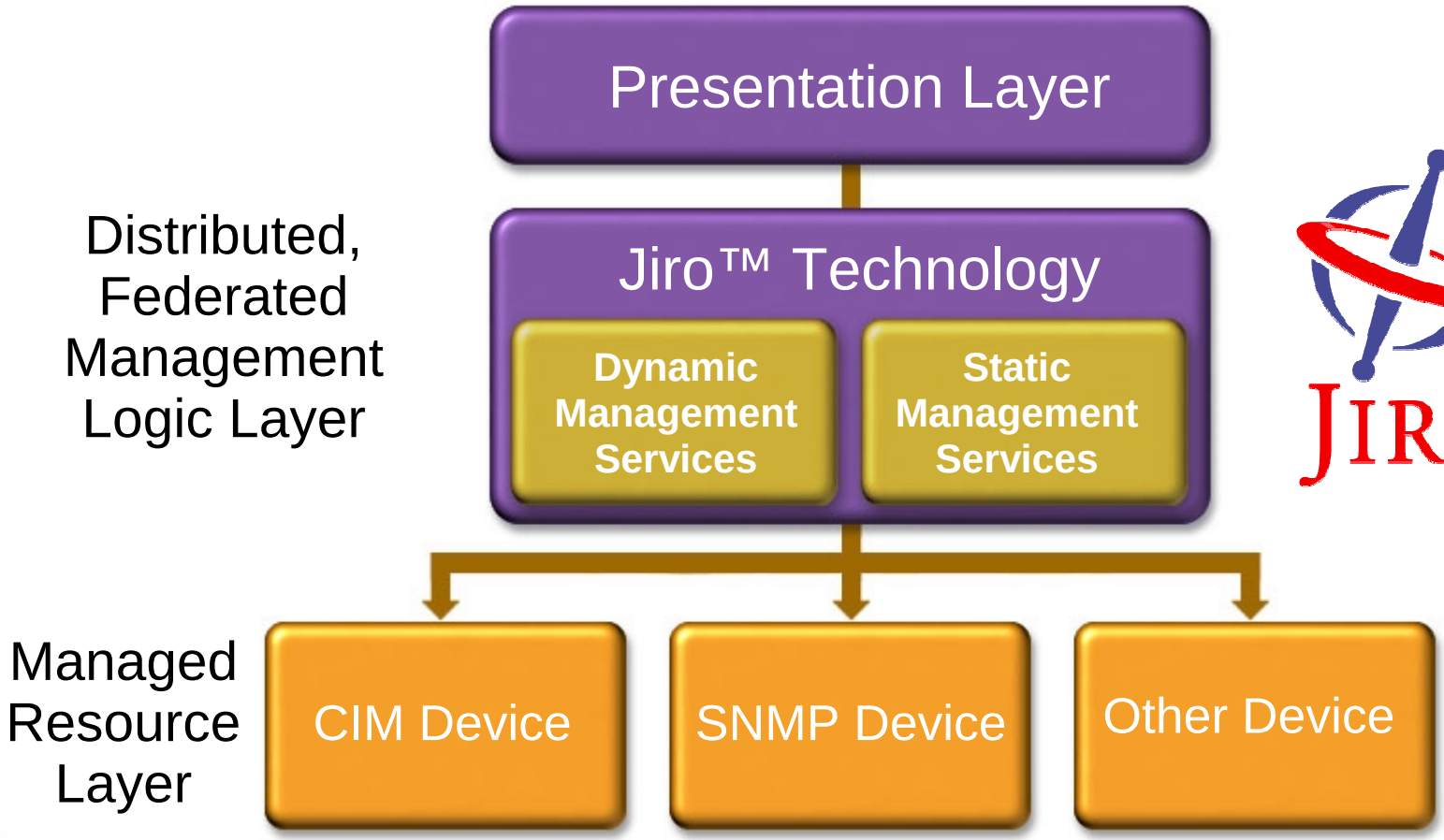
Presentation

Logic/Services

Resource/Agent



# Three Tiered Management

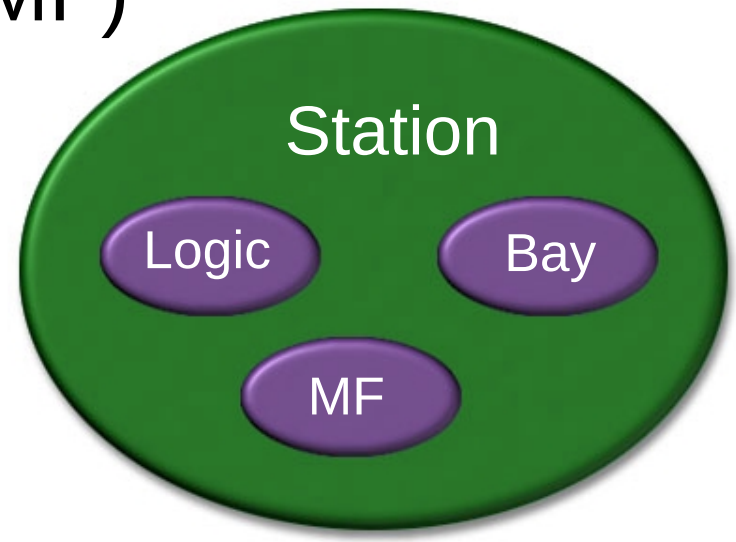


# Jiro Technology Components

- FederatedBeans™ technology-based components (FederatedBeans components) are vendor created dynamic services enabling distributed management of devices and services across a network
- Base management services offer transaction management, logging, events, scheduling, registration/lookup, and security
- FederatedBeans components and base management services reside on a Jiro station which runs across distributed Java™ virtual machines (JVM™)

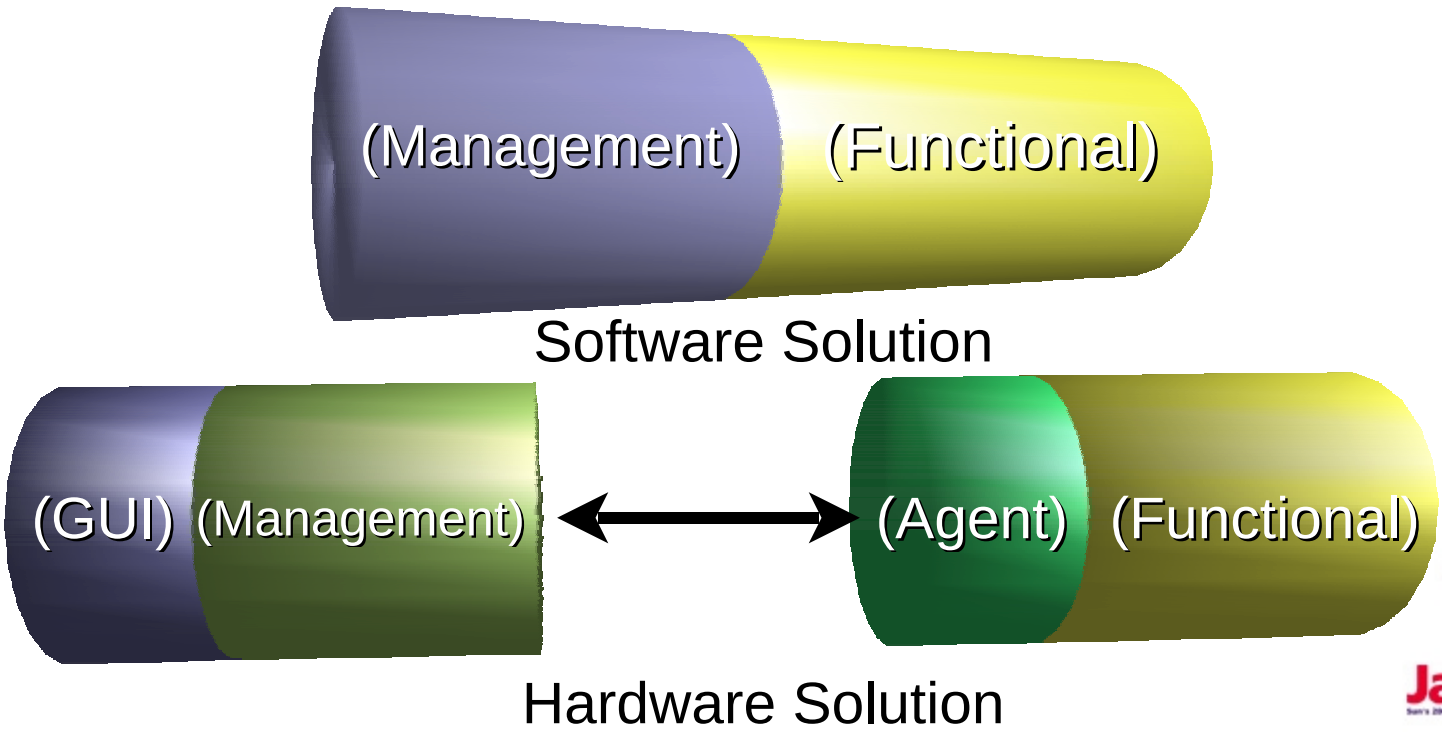
# Dynamic Services (Roles)

- Management Façade (MF)
  - Represent managed resources to logic
- Logic
  - Communicates with client and MF
- Bay
  - Communicates with Station to deploy and install MFs when a managed resource is discovered



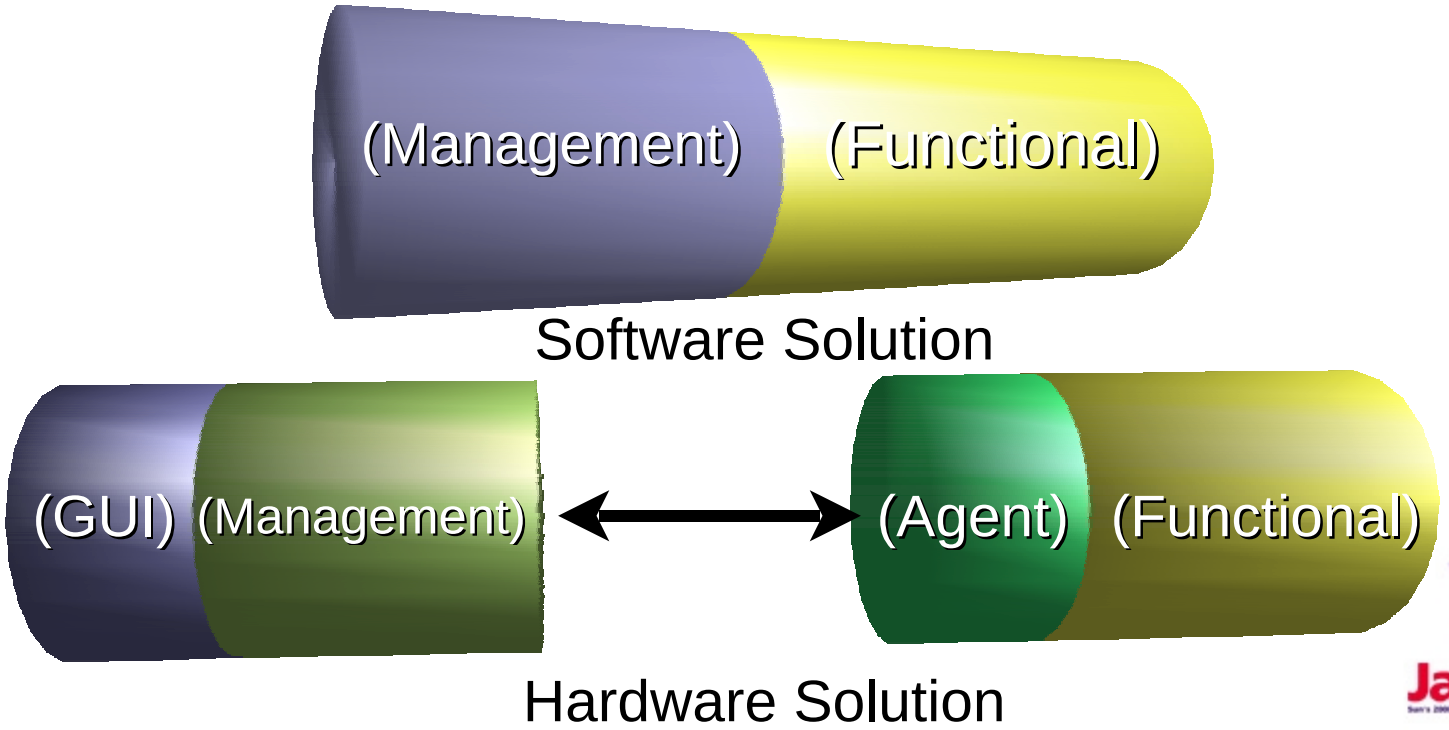
# Management View of Resources

- All resources, hardware and software, have a functional piece, and a management piece

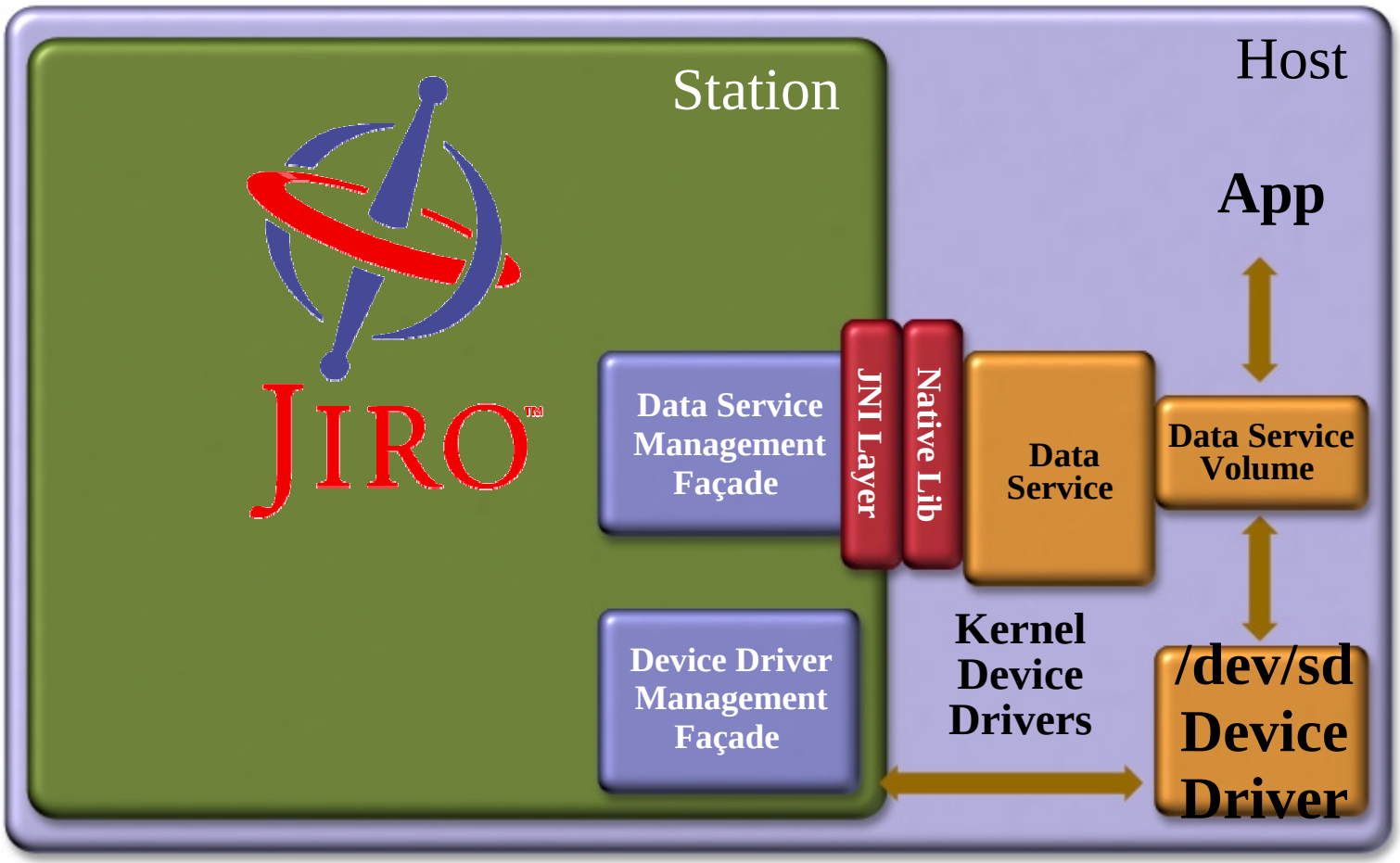


# Management View of Resources

- Create a Management Façade for the resource
  - Enables the resource for integration and automation



# Software MF




*Bottom up Implementation*

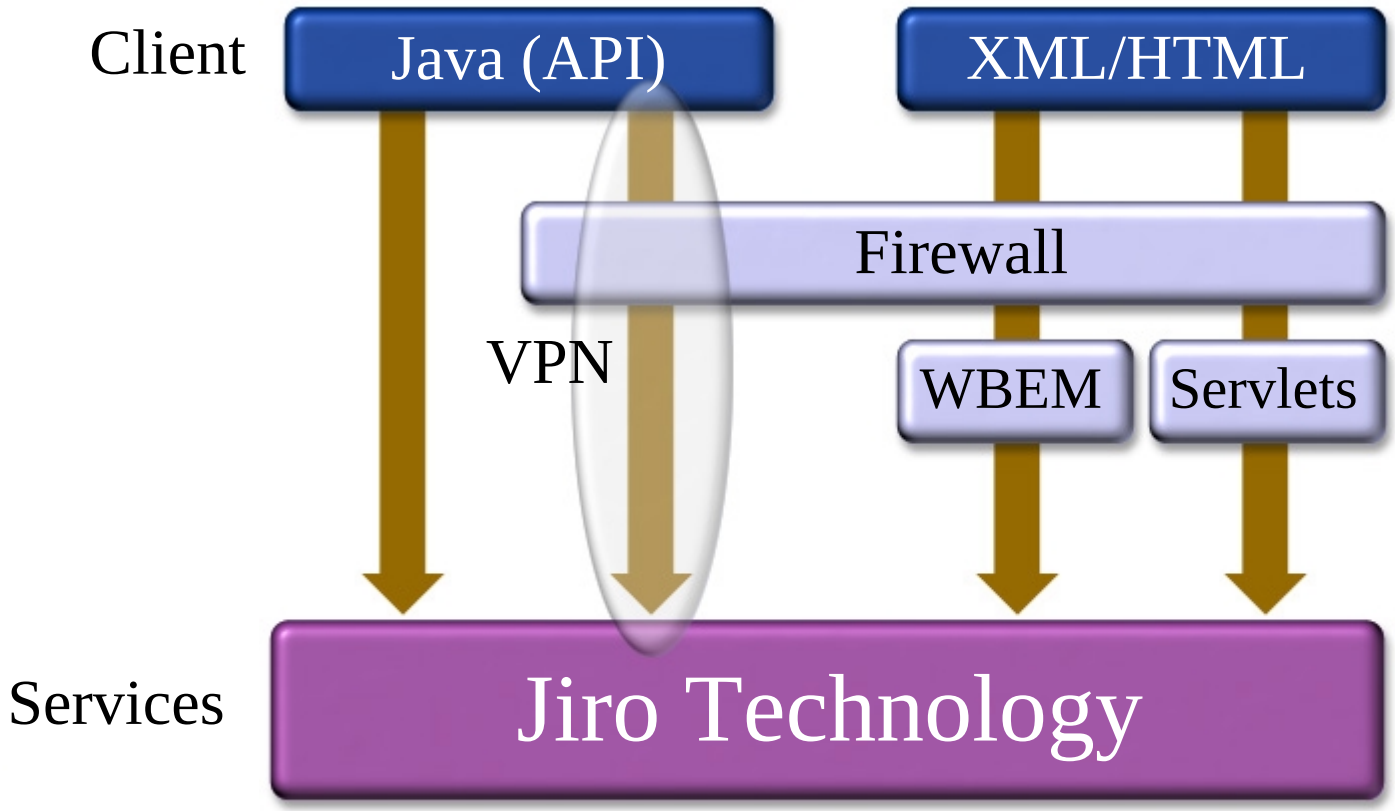
# Hardware MF


Host
JIRO
In-Band
Management
Out-of-Band
Management
SCSI Enclosure
Services
SNMP Agent
Fabric Element MIB

# Dynamic Service Vendor Responsibilities

- Deliver an interface JAR to vendors writing clients of the particular service, including other dynamic services
- Deliver an installer for the service, OR
- If a device vendor, install MF automatically from device, OR
- Be discoverable by a known Bay
  - A standard WBEM Bay currently under consideration pending standardization of CIMOM discovery
  - Vendor specific

# Client to Service

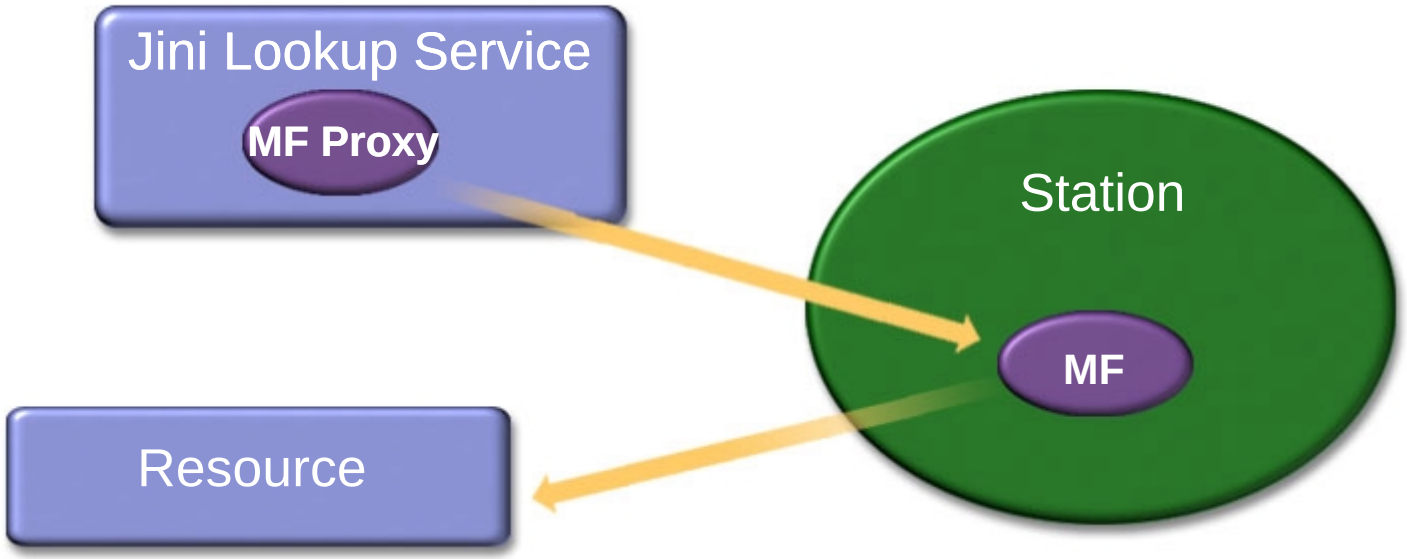


# Service to Resource: Resource Vendor

- Upon resource installation, a proxy object representing the managed resource must be registered in the lookup service of the management domain
- The proxy must support Jiro semantics (RMI semantics, controller locking, ...)
- The proxy class and supporting classes must be network loadable per RMI semantics

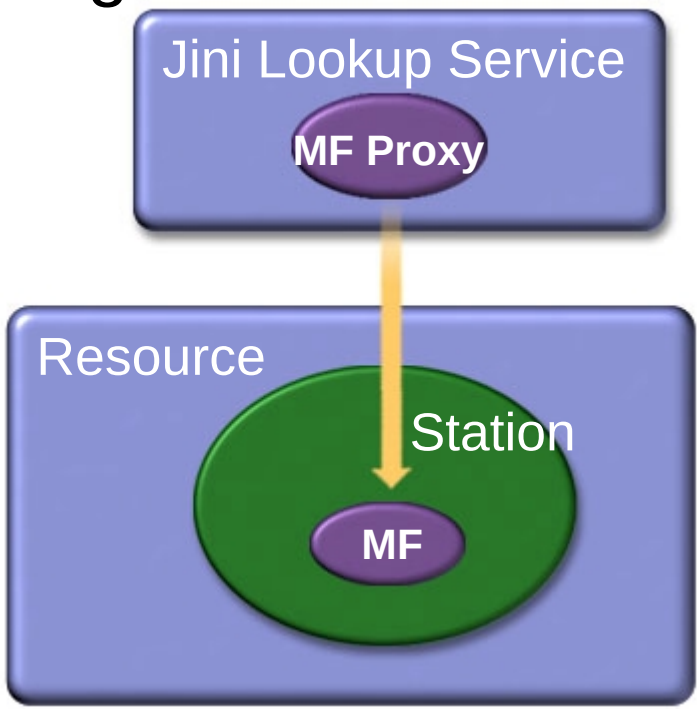
# Service to Resource: Strategies (1)

- Install a MF in a shared station
  - The station applies Jiro semantics and proxy registration
  - Installation options (installer, auto, bay)



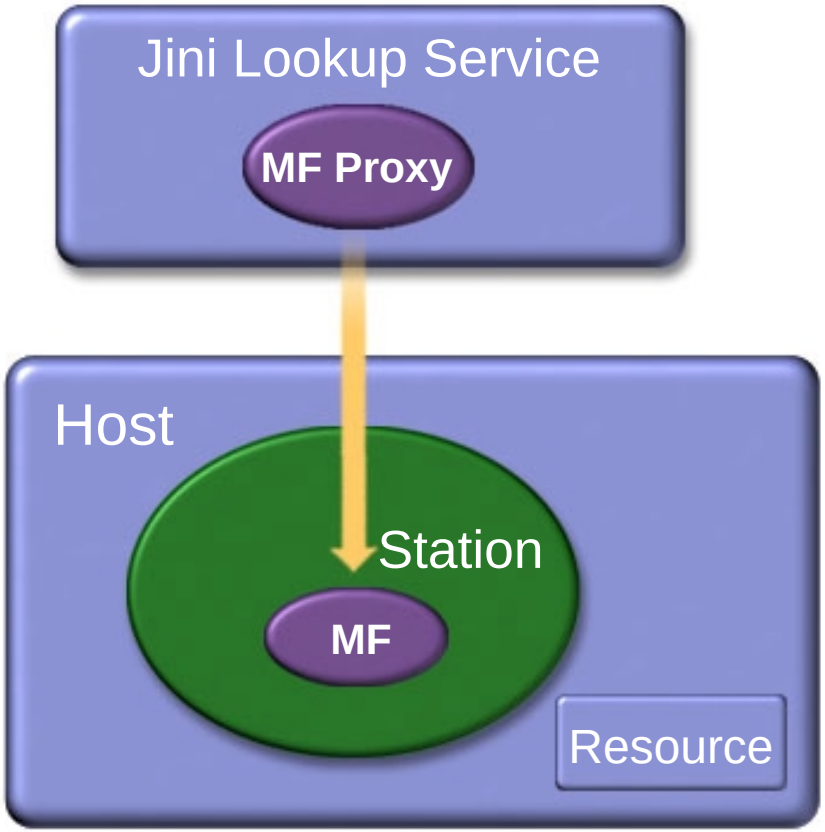
# Service to Resource: Strategies (2)

- MF in a embedded (private) station
  - The station applies Jiro technology semantics and proxy registration
  - Significant overhead



# Service to Resource: Strategies (3)

- MF in host embedded (private) station
  - Requires a station running on the host



# Service to Resource: Strategy Decision

- If the resource does not support remote communication, directly or indirectly (WBEM, ...), then use host station strategy
- If resource is not host attached, use shared station strategy or, if device is sufficiently capable, device embedded station strategy
- Consider using WBEM and shared station strategy instead of host station strategy

# Service to Resource: Key Agent Support

- Manager classes available to be used by MFs based on SNMP or WBEM
- SNMP Manager to conform to JMX specification (tentative)
- WBEM Manager to conform to the Java platform WBEM specification

# Service to Resource: WBEM

- Host centric WBEM vs. network centric Jiro technology
  - Network level CIMOM
  - Mother of All Providers (MOAP) to bridge network level and host level CIMOMs
  - MOAP provides name space translation from network basis to host basis—dynamic mapping
- WBEM security vs. Java platform-based security
  - Java security guards access to WBEM credentials

# Getting Started With Jiro™ Technology

- Managed resource?
  - Devices
  - Software
- Write management façades for resources
  - Basic→Advanced development
  - Event and Logging Services
  - Java platform WBEM

# Getting Started With Jiro Technology

- Management client?
- Locate and communicate with Federated Beans
  - Basic development
  - Event, Transaction, and Controller Services

# Getting Started With Jiro Technology

- Management application?
  - Asset managers, fabric healers, ...
- Everything! (client+resource+logic)
  - Basic → Advanced development
  - Base Services

# Resources

- **jiro.com**
  - Jiro technology community
- **sun.com/jiro**
  - Jiro technology product information
- **FMA specification**
  - java.sun.com/aboutJava/communityprocess/final/jsr009
- **JavaOne℠ Conference Sessions**

  TS-1158 – FederatedBeans™ components
  TS-1159 – Base services

- **Questions & Answers?**

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