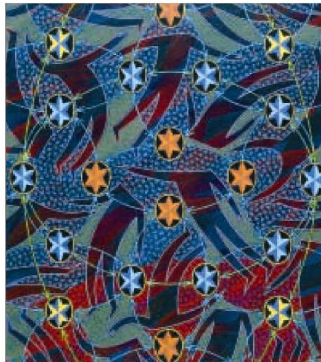


"Managers of Java-based projects and developers on those projects owe it to themselves to take a look at Jini technology, since they're already working in environments where ubiquitous mobile code is possible."

—From the Foreword by W. Keith Edwards, author of *Core Jini, Second Edition*, and *Jini Example By Example*, Xerox PARC, Palo Alto

JINITM TECHNOLOGY

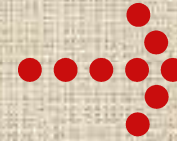


An Overview

- Jini technology for decision-makers
- Concepts, applications, advantages, and limitations
- Solutions for device and enterprise connectivity

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Building a Generic Monitoring Framework Using Javaspaces

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Agenda

- Presentation Goal & Context
- Conventional System Monitoring Vs Distributed System Monitoring
- A simple solution for this complex problem
 - Overview
 - Conceptual view
 - Physical view
- Approach using JavaSpaces
 - Why Javaspaces?
 - Detail Design pre-view
- Questions



Presentation Goal & Context

With the recent adoption of the distributed technologies such as CORBA, J2EE and Web Services the system monitoring requirements have become much more complex and demanding.

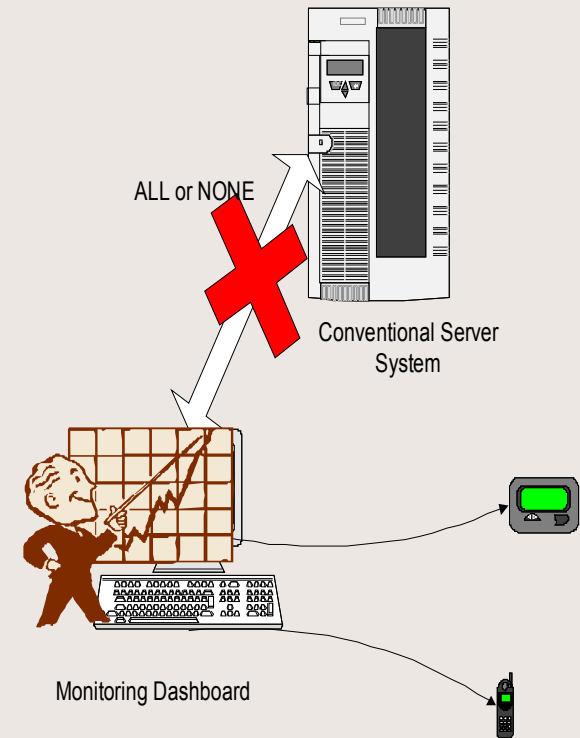
This presentation provides an overview of the thoughts and experimentation of an monitoring solution using JavaSpaces.



What Is Different?

Conventional Server System Monitoring Vs Distributed Server System Monitoring

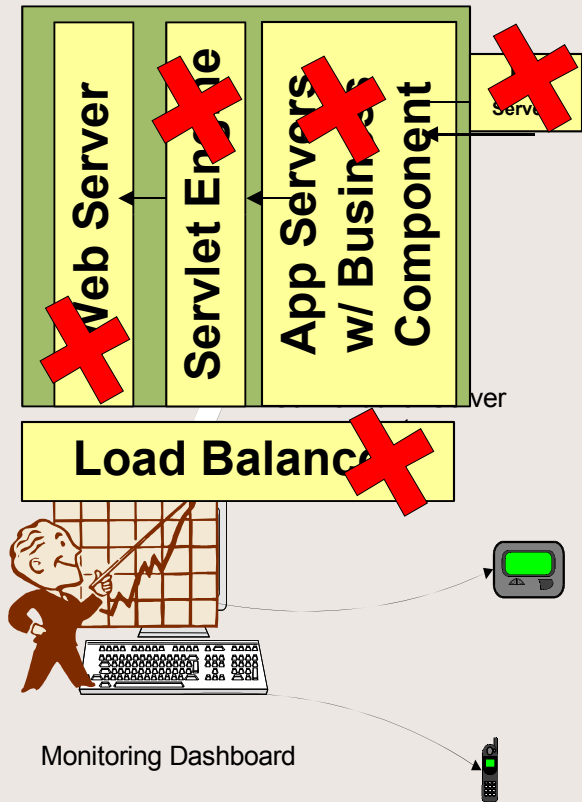
- Failure in a conventional server based system is “Total” – It is “ALL or NONE” scenario.
 - Mostly “system management” tools such as Tivoli ARE used to monitor the health and performance of the system.



What Is Different?

Conventional Server System Monitoring Vs Distributed Server System Monitoring

- Failure in distributed server system are “Partial” –
 - Most distributed systems are multi-tiered architecture composed of – load balancers, web servers, application servers, database servers, security servers, transaction servers linked through networked components
 - Monitoring such systems poses enough challenges
 - Different parts of the same system can fail without the knowledge of the other

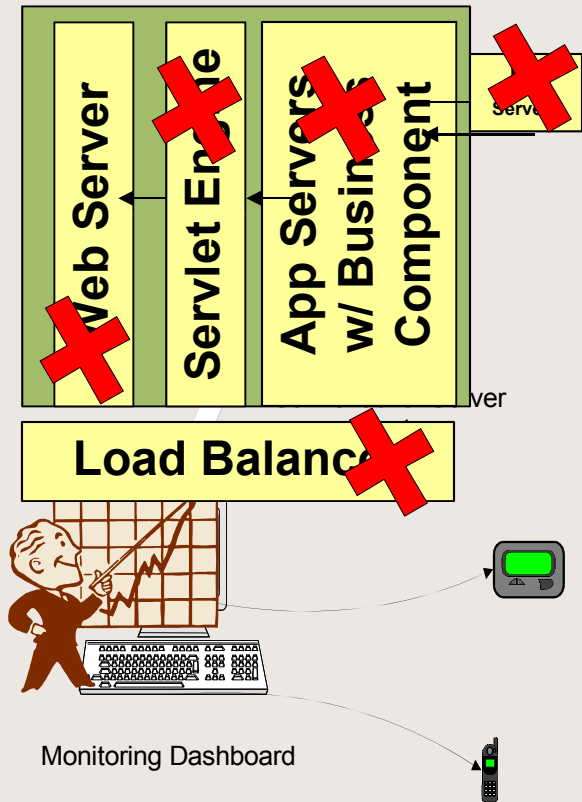


What Is Different?

Conventional Server System Monitoring Vs Distributed Server System Monitoring

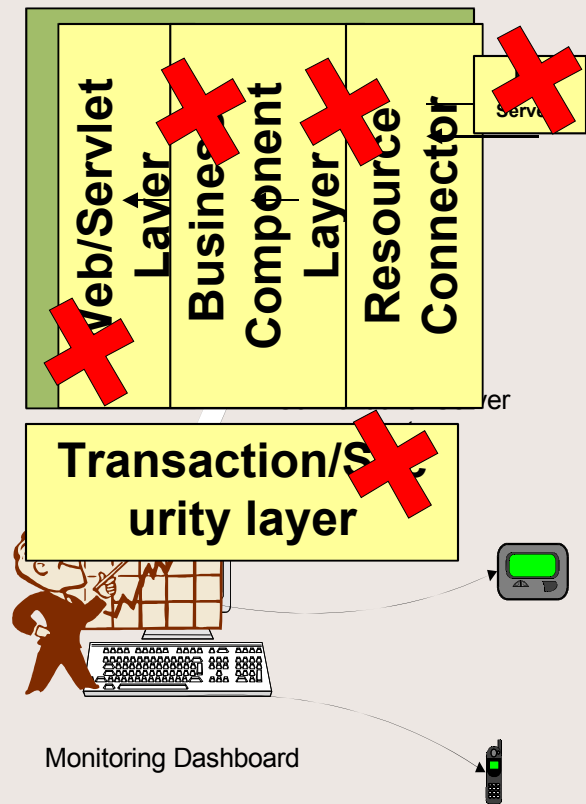
- Add
 - Cloning or Clustering
 - Performance Monitoring
 - Business SLA (Service Level Agreement) monitoring
 - System availability (24x7x365) Monitoring

The problem is complex !

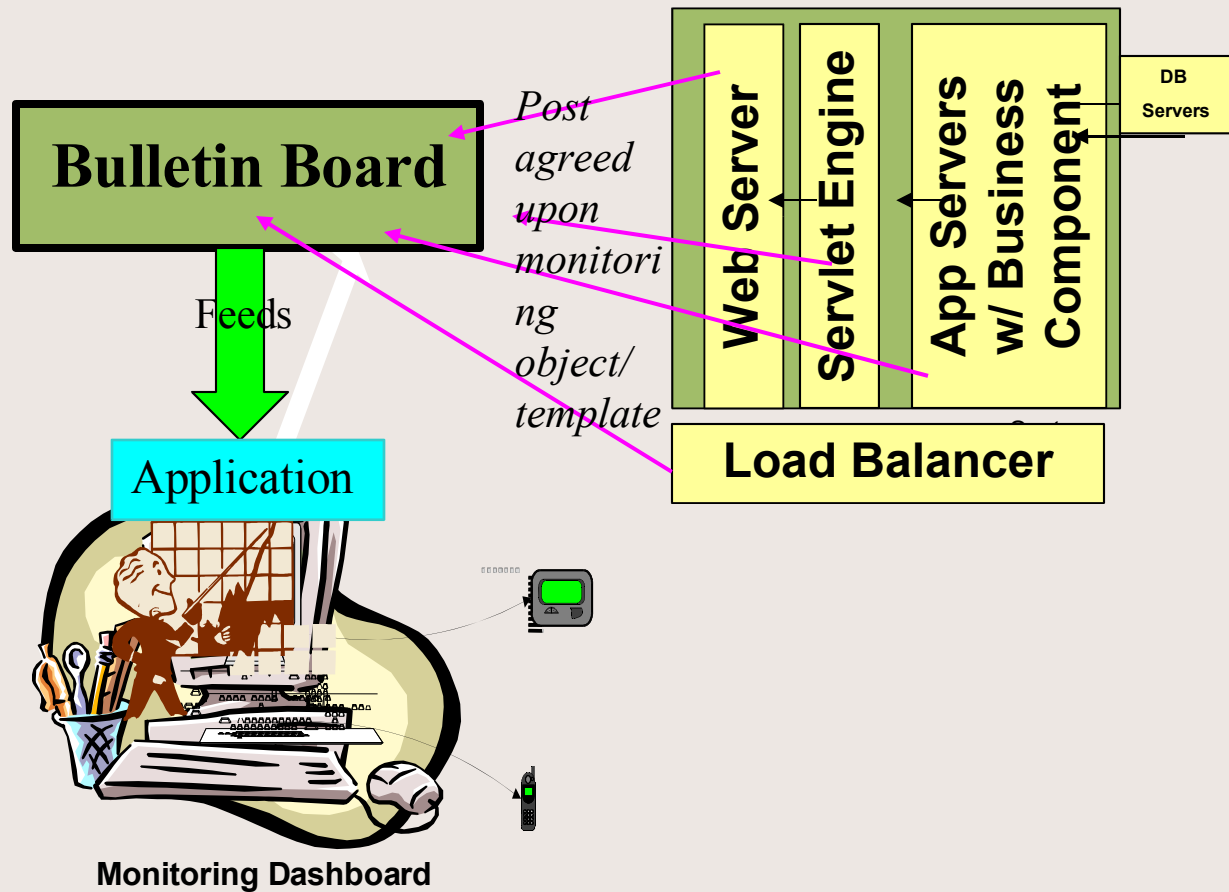


A Simple Solution to This Complex Problem

- Provide a “message board” where each distributed component can post its operation/ performance/ status information in a mutually agreed format/template using a “generic monitoring framework”
- Build an “application” which can feed the message board and provide a dashboard view

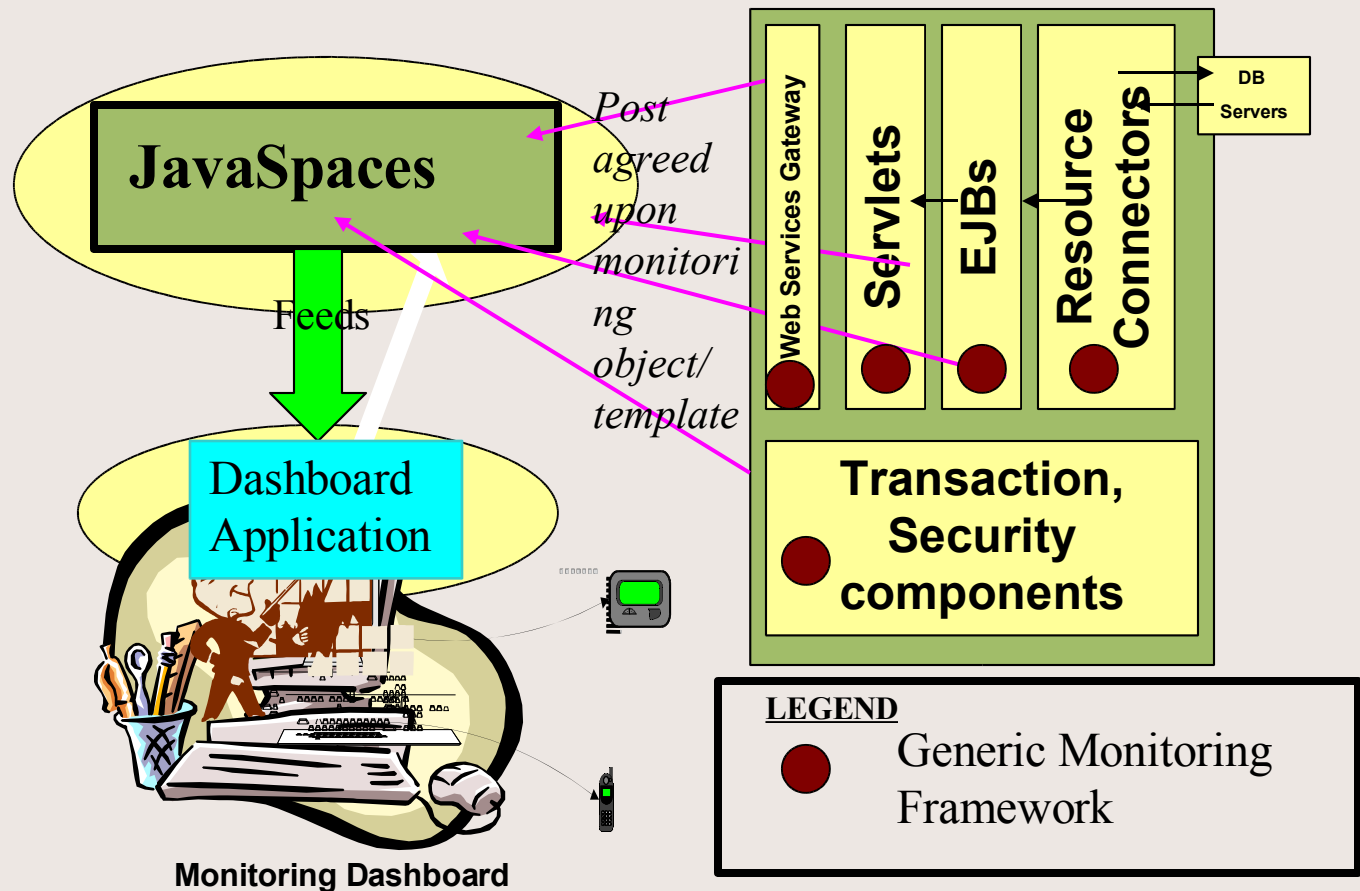


A Simple Solution to This Complex Problem - Conceptual View



A Simple Solution to This Complex Problem

- Logical/physical View



Javaspaces Approach – Why Javaspaces?

- JavaSpaces possess the following inherent characteristics.
 - Provide network accessible shared memories.
 - Supports the bulletin board-like requirements.
 - Supports Loosely coupled environment.
 - Processes interact indirectly through the space and do not need to know each other.
 - Data senders and receivers are not required to know each other.
 - Supports distributed data structure.
 - The monitor-data structure can contain the various data needed for complete application monitoring such as performance, time, business transaction information. These data could be filled by a single component/process or multiple component/processes based on the probing strategies.
 - Provides Simple but powerful APIs.
 - Read(), write(), take().



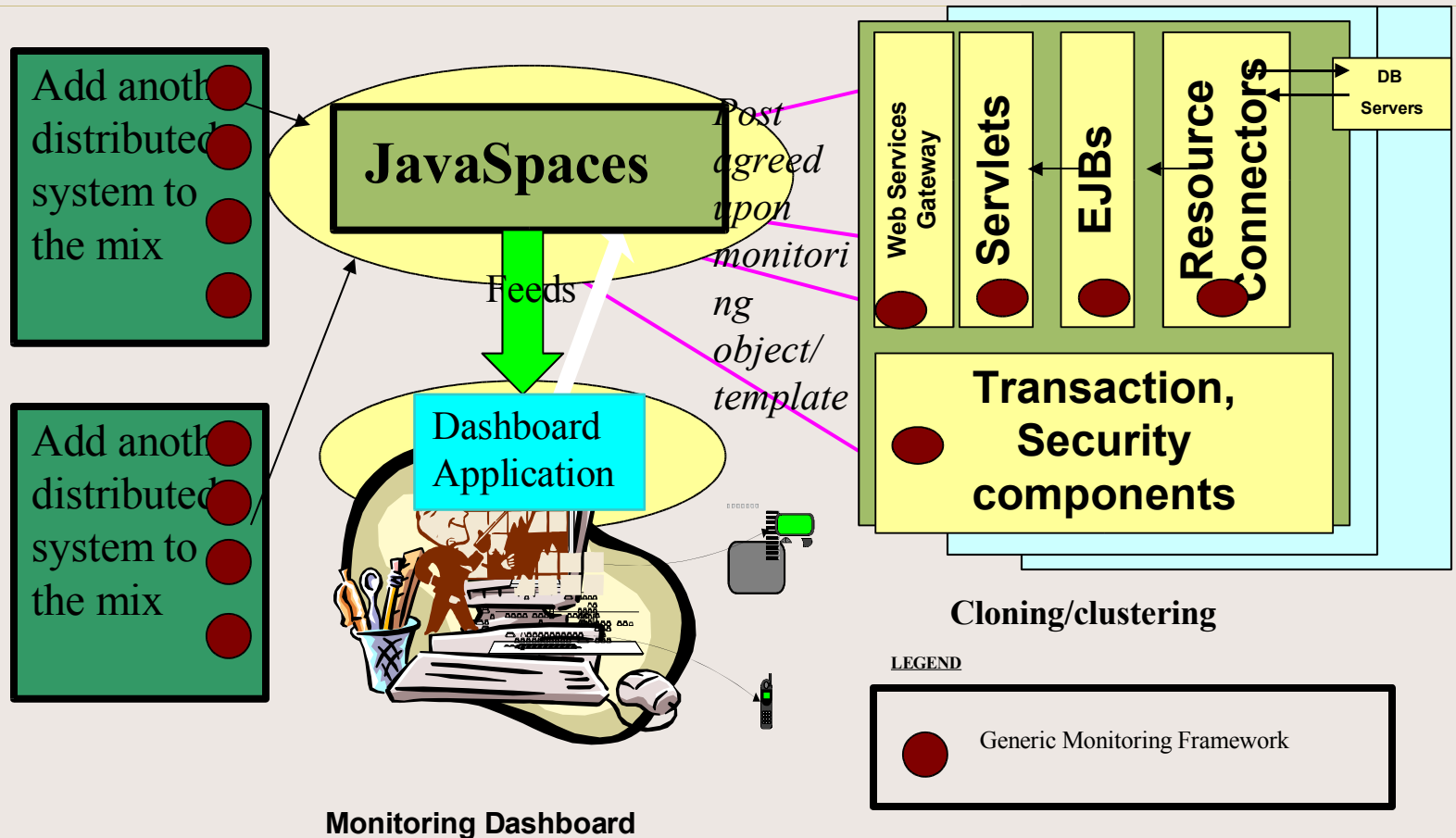
Javaspaces Approach – Why Javaspaces?

- JavaSpaces possess the following inherent characteristics ... (continued)
 - Provides secure transaction specific model using simple APIs
 - Read(), write(), take()
 - Support template based search/associative lookup
 - Locate the objects based on the content rather than by memory location or identifier
 - If needed the same monitoring object can be looked up for gathering an SLA for a specific business transaction or the performance clocking for the end-2-end/resource-connector-2-end
 - This feature perfectly fits the dashboard application needs
 - Support distributed events and transaction as a part of the Jini application model
 - Can be used to report a failure during a process-flow to any registered client
 - Since the dashboard application is operating outside the monitored-system JVM, it does not impact the performance of the existing system



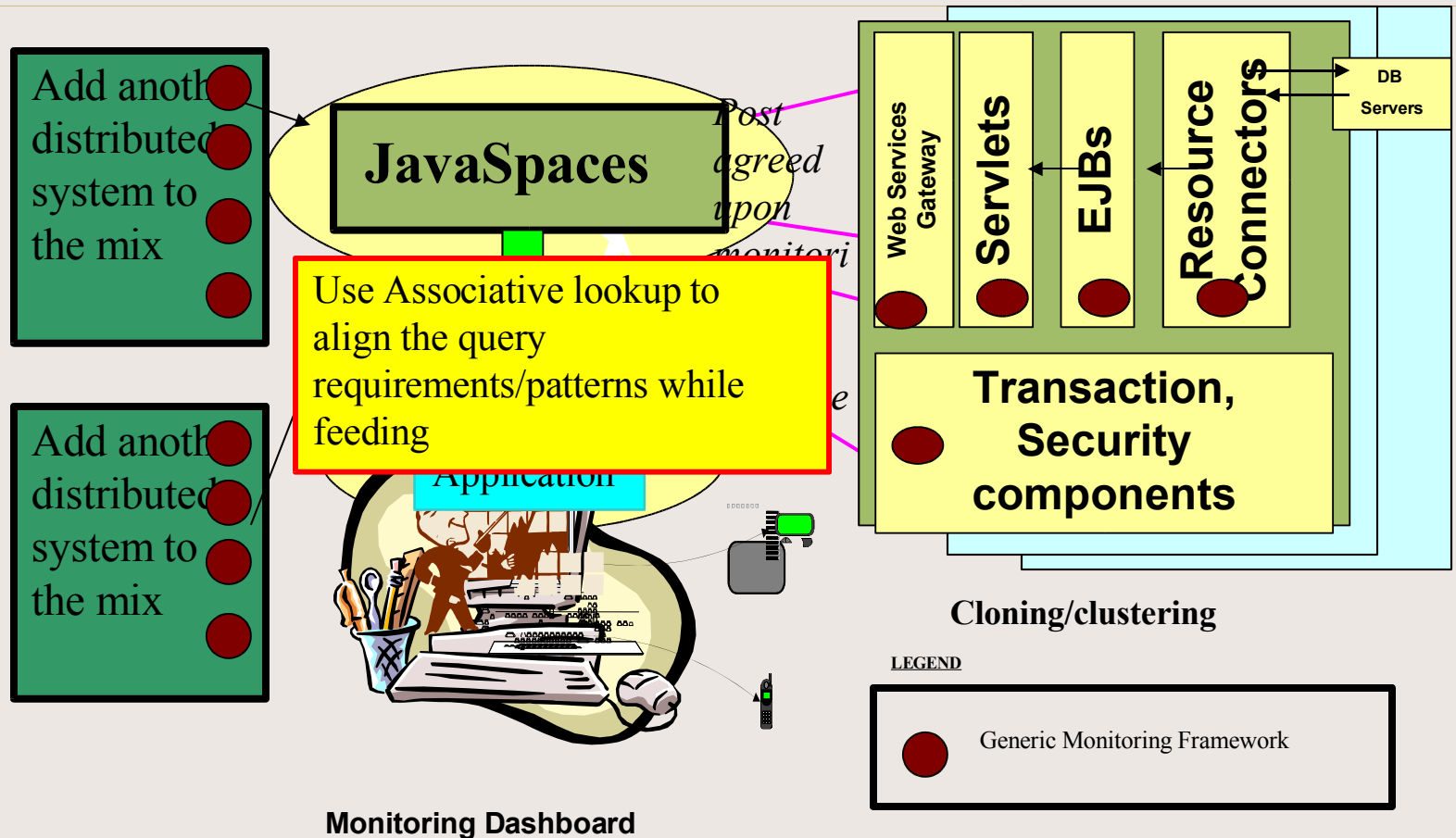
Add requirement complexity to the simple solution

- Cloning/Clustering, Adding new system to the mix



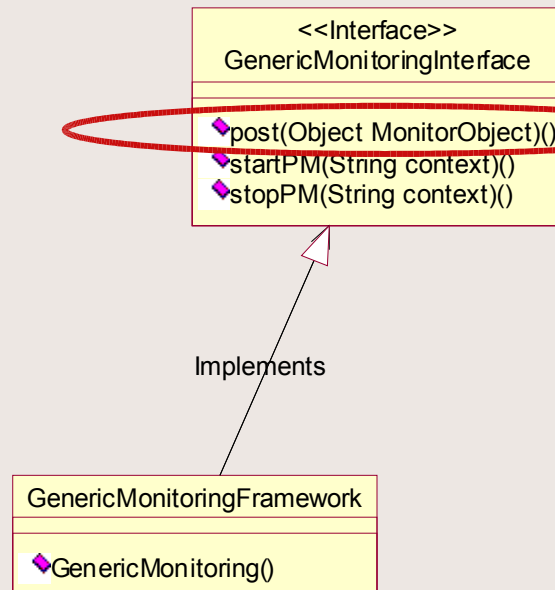
Add requirement complexity to the simple solution

- Monitoring pattern to the mix – Performance, SLAs, Availability



GMF w/ Java Spaces Approach

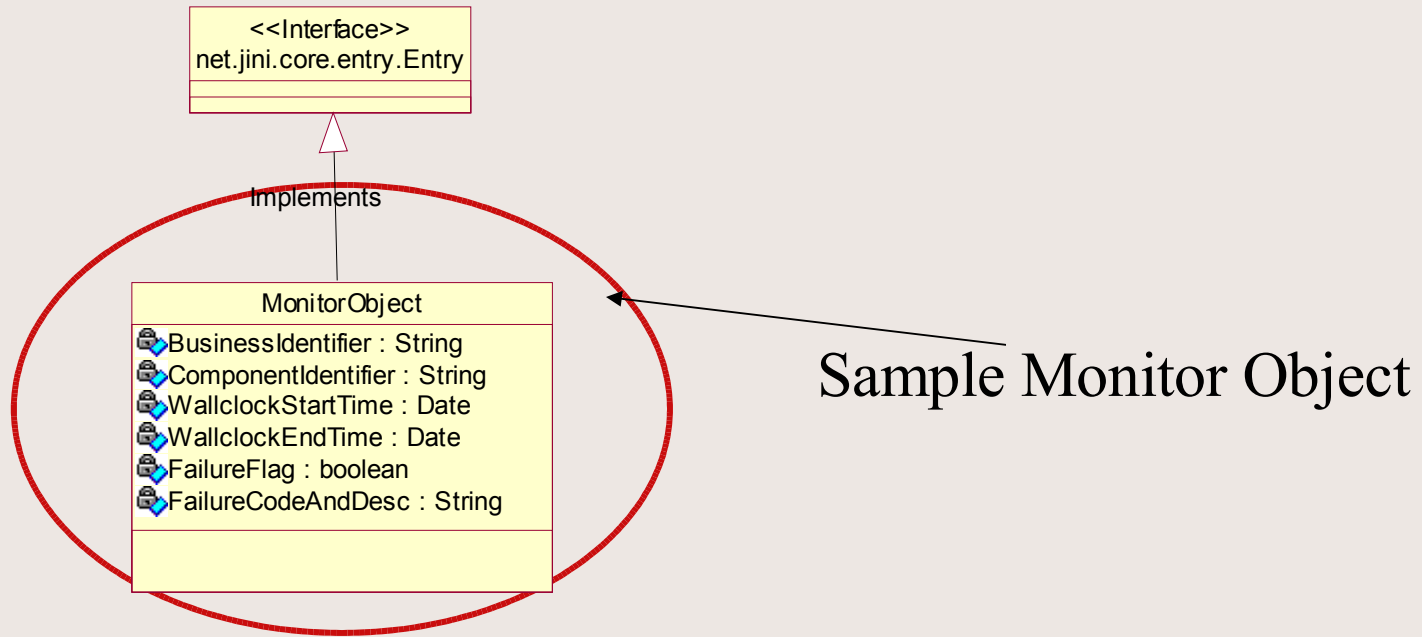
Detail Design (Peek-View)



Post() implements the functionality to write the given object info onto the JavaSpaces

GMF w/Java Spaces Approach

Detail Design (Peek-View)



JavaSpaces/Generic Monitoring Framework

Approach – Challenges Foreseen

- As the core functionality revolves around the generic monitoring framework which encapsulates the JavaSpaces APIs, it may be difficult to bring non-JVM distributed application into the mix.
- Pre-package application can be another challenge

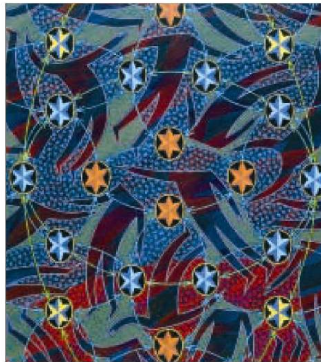
–Mitigation/Probable solution

- The Dashboard application can feed off certain information from the available/re-formatted log file in addition to the Space entries

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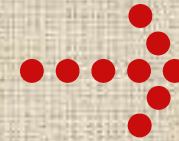


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Questions

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