Network Management using Mobile Agents Framework (MAF)

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Network Management

- Fault Management
- Accounting Management
- Configuration Management
- Performance Management
- Security Management

Conventional Techniques of Network Management

- Centralized; Client Server Architecture

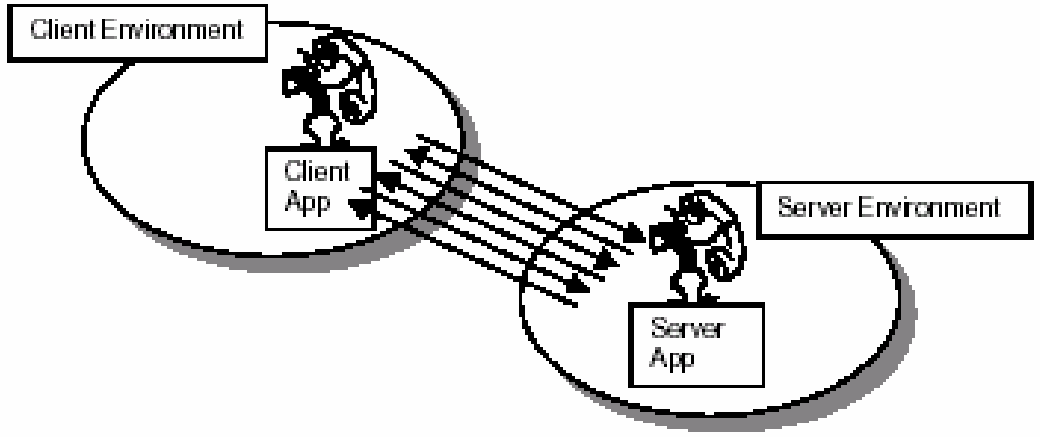

Figure 1: Client/Server architecture

Problems with Client-Server Architecture

- Increased Bandwidth Consumption
- Unreliable network connection
- Rigid Architecture
- Inefficient Load Management

Proposed Architecture for Network Management

- Mobile Agent Frame Work

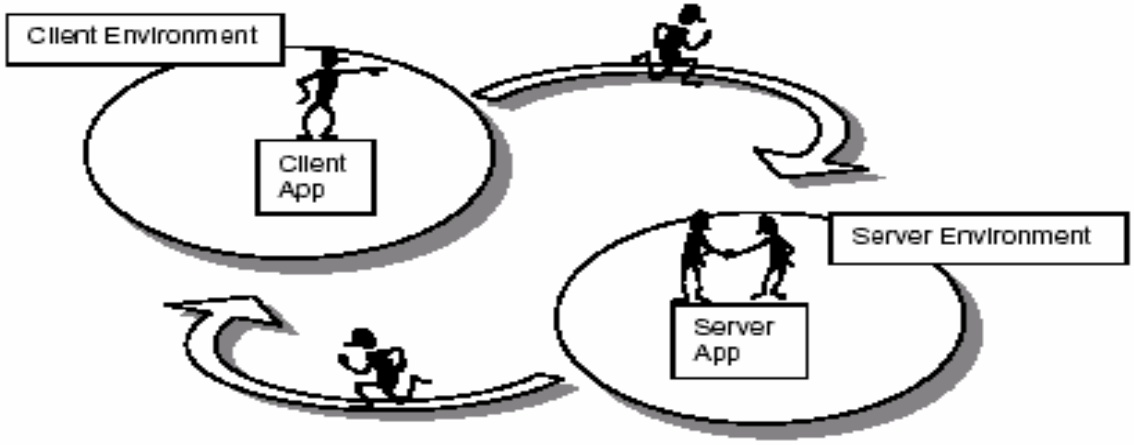

Figure 2: Mobile agent architecture

What is an Agent?

“An agent is anything that can be viewed as perceiving its environment through sensors and acting upon that environment through effectors” (Russel & Norvig 1995).”

What is a Mobile Agent?

An Agent which is able to transport itself from one machine to another

How does Mobile Agent Framework solves the Problems?

- Increased Bandwidth Consumption ⟹ Query / Transaction migration
- Rigid Architecture ⟹ Flexible design
- Unreliable network connection ⟹ Offline Management
- Inefficient Load Management ⟹ Parallel Processing

Our Focus…

- Fault Management
- Performance Management

What is Fault Management / Performance Management ?

- Fault Diagnosis
- Error Recovery
- Efficient utilization of resources
- Traffic analysis

Current Research

- ROC; Recovery Oriented Computing

  Joint Project of Berkeley & Stanford University:
  Headed by: Dr. Armando Fox
  http://roc.berkeley.edu

- Autonomic Computing / Self-Healing

  Project of IBM® Watson Research Laboratories, Massachusetts :
  http://www.research.ibm.com

Development Tools

- IBM® Aglets
- Java™