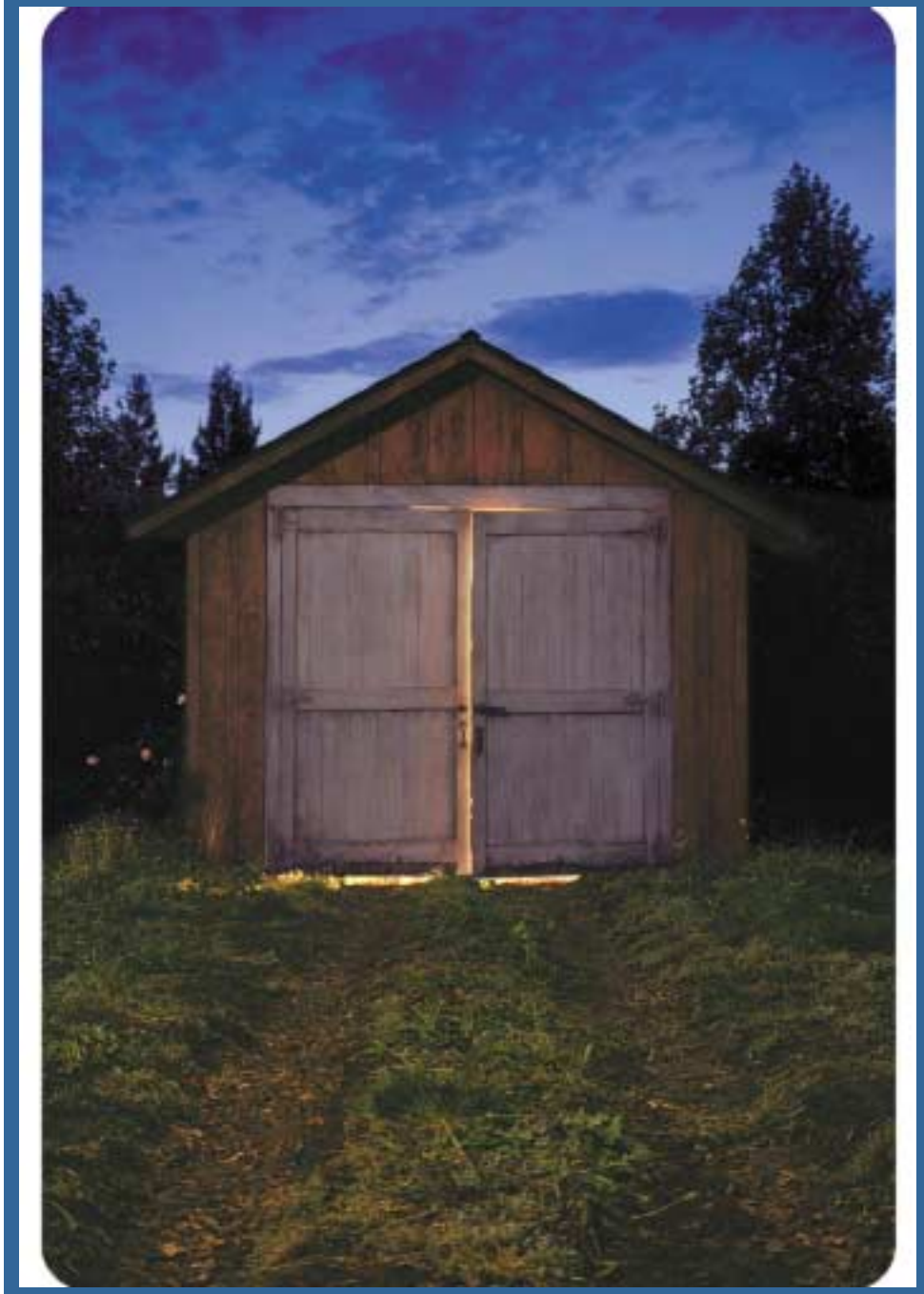

hp
invent



Bill Martorano

Chief Architect - EIA

Hewlett-Packard

HP Services

August 2001

HP World

Presentation Agenda

What is the Enterprise Information Architecture?

What monitoring problem?

EIA's approach to monitoring

EIA High Availability goals

Case study: "Monitoring the EIA Integration Broker"

What is EIA?

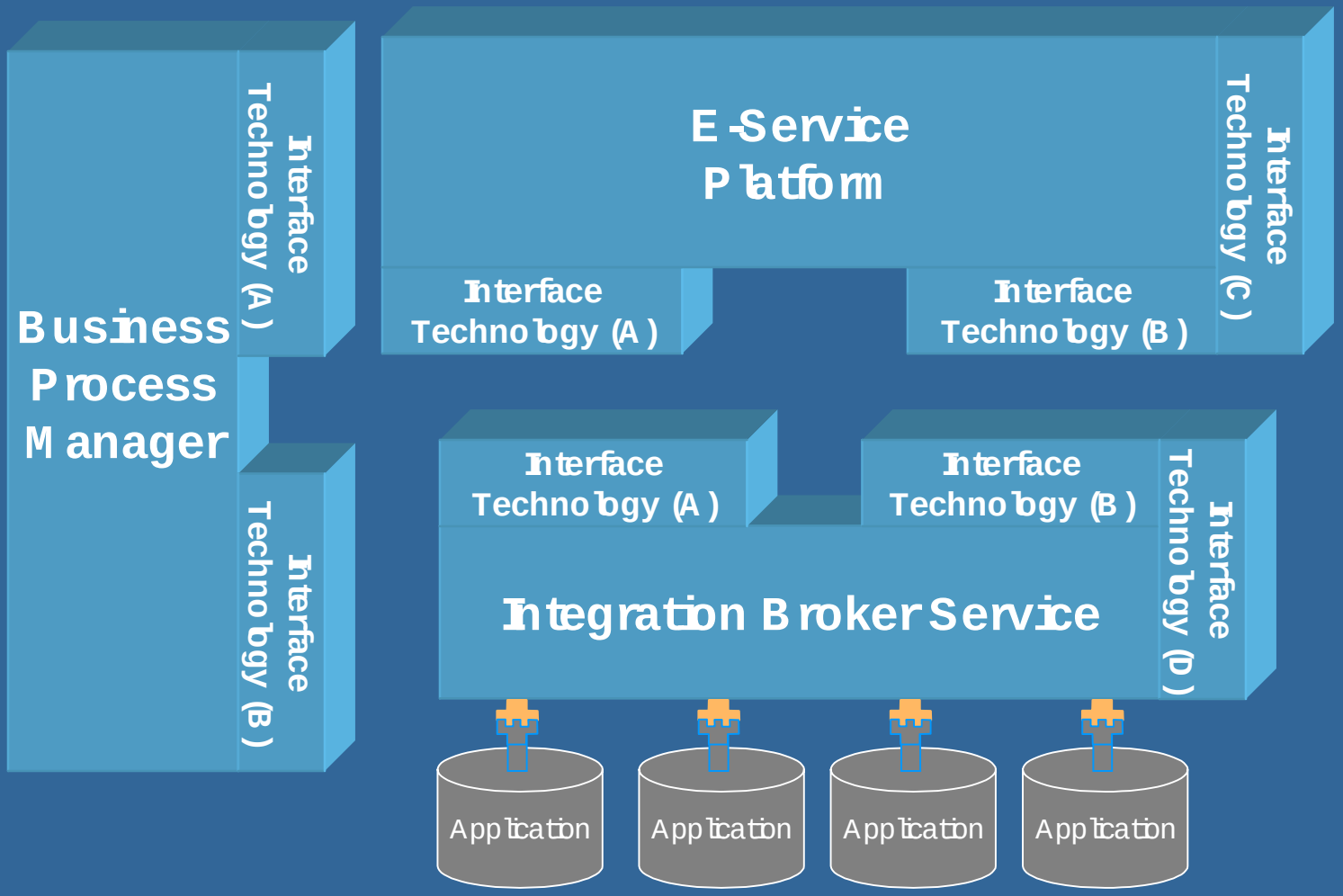
"Enterprise Information Architecture"

Project to build internal infrastructure to support A2A (internale AI) and framework for B2B services.

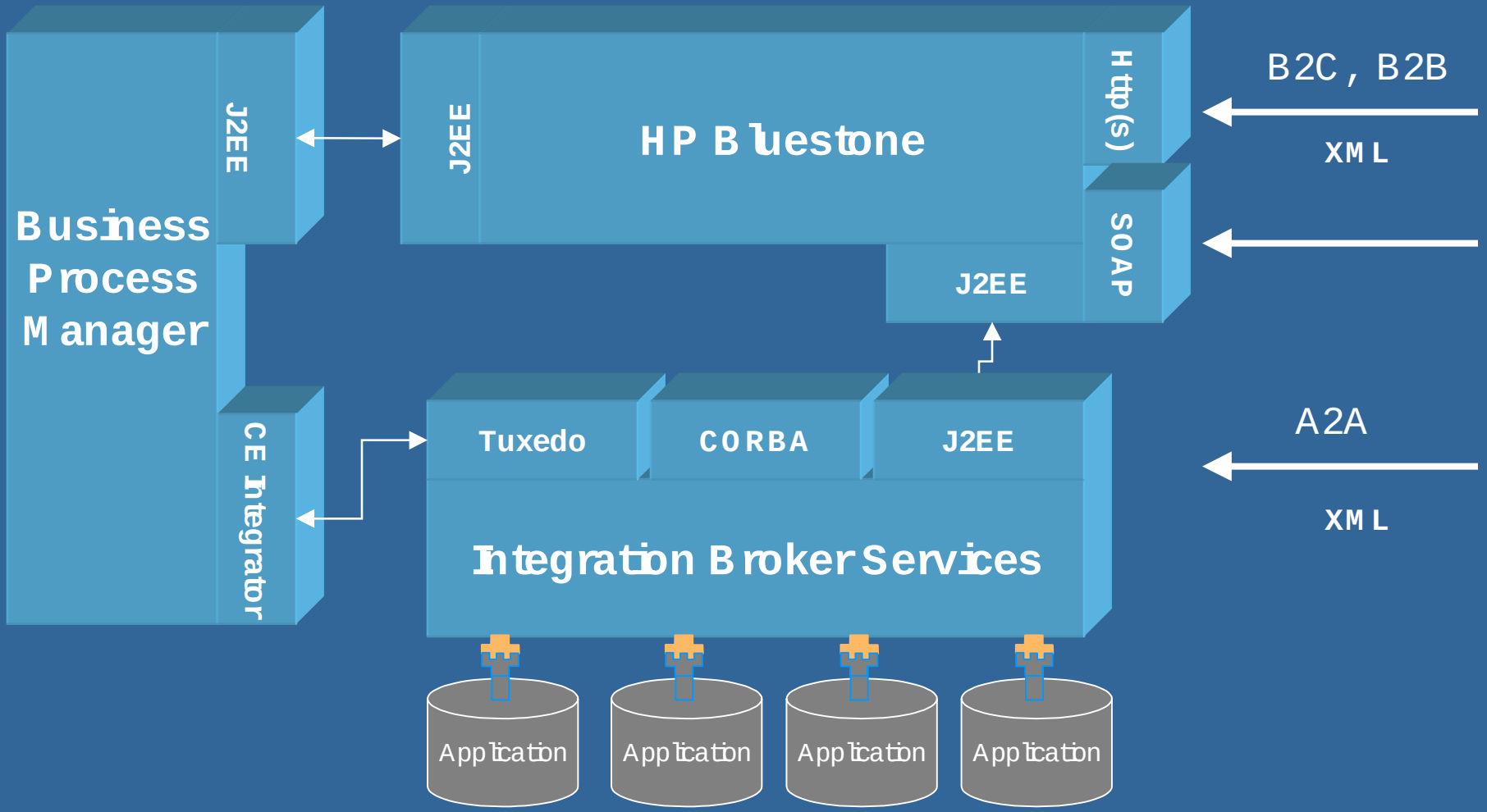
Major components are;

- "Integration Broker"
- "Business Process Manager"
- "E-Service Platform"

EIA Architectural Framework



EIA Architectural Framework Implementation (Current-State)



What is the Monitoring Problem?

Complex architecture

World-wide deployment

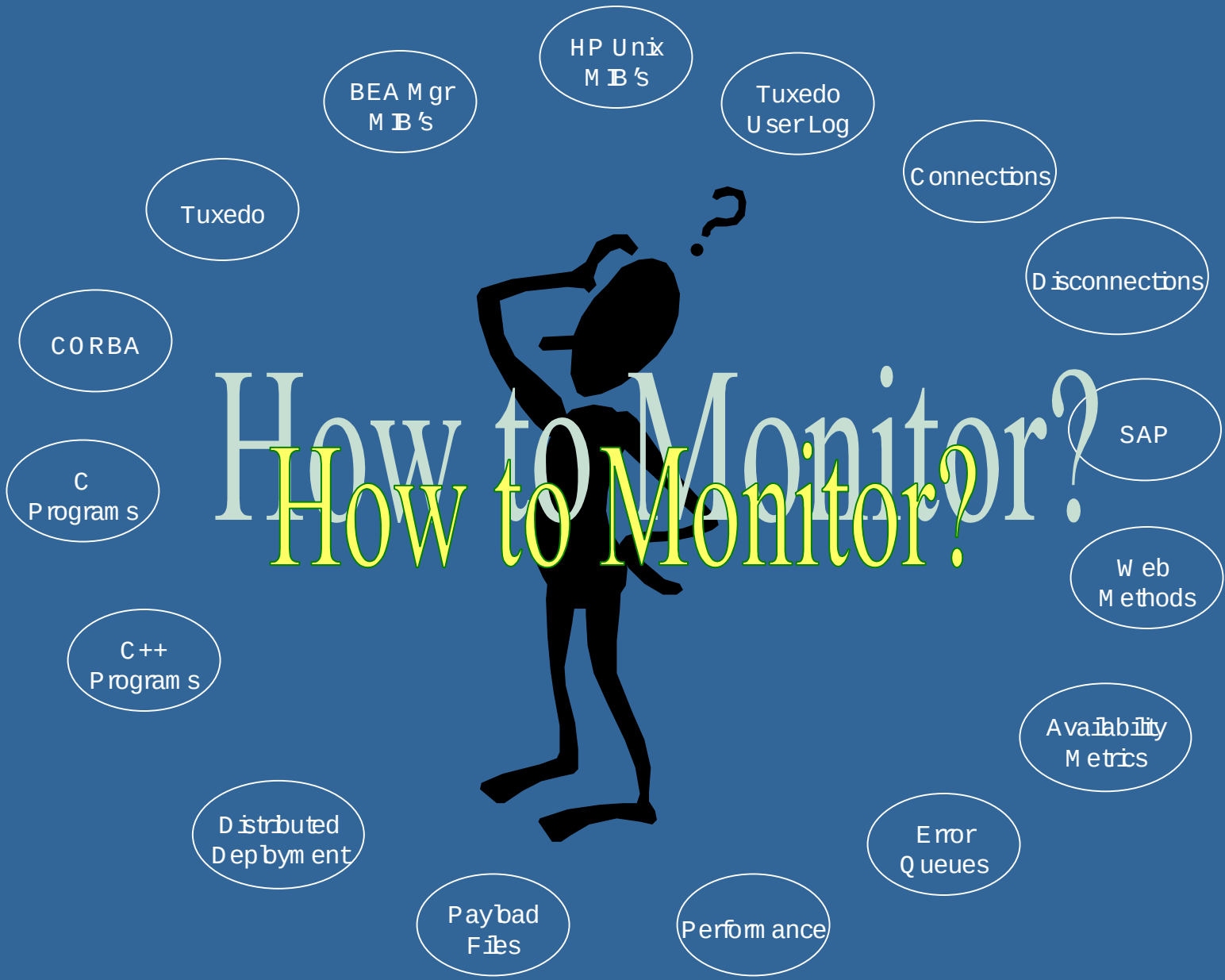
Multi-component, multi-language, multi-platform

No human sitting at a console waiting to solve problems.

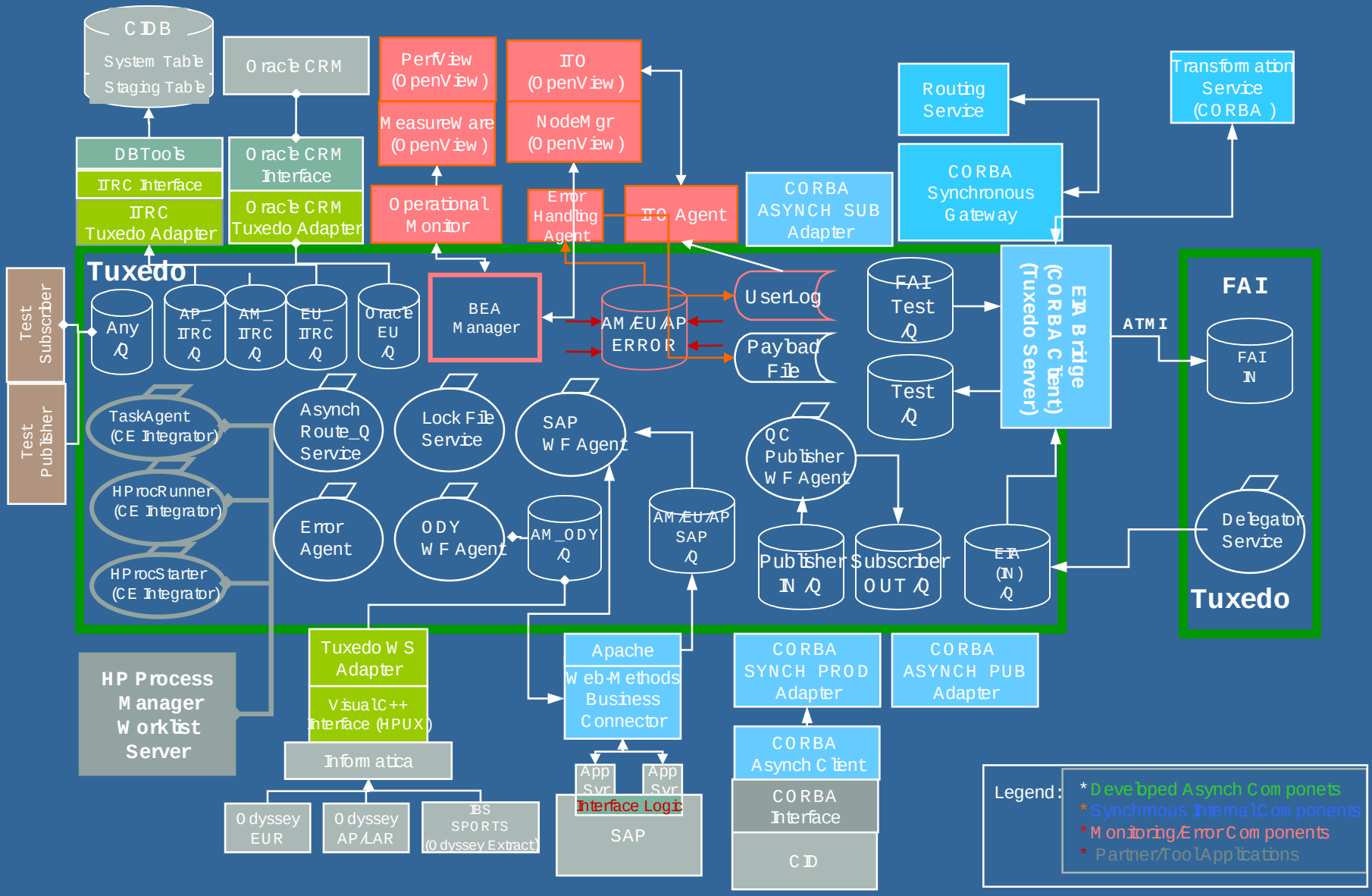
No GUI. No single application.

99.9% High Availability goal for (synchronous architecture)

Need for "pro-active" monitoring BEFORE problem occurs


How to Monitor?
HP Unix MIB's
BEA Mgr MIB's
Tuxedo User Log
Connections
Tuxedo
Disconnections
CORBA
SAP
C Programs
Web Methods
C++ Programs
Availability Metrics
Distributed Deployment
Error Queues
Payload Files
Performance

EIA Wave #3 Internal Architecture



The products and tools to do the Job !

- HP OpenView
- HP OpenView IT Operations Management Server (single collection point, operations console)
- HP (MC) Service Guard (High Availability)
- HP MeasureWare (Performance monitoring)
- SNMP (Simple Network Management Protocol)
- ARM (Application Response Measurement) API

Enterprise Information Architecture

High Availability Policy

Goals and Metrics

EIA's High Availability Policy

1. EIA operational goal **for Request/Reply** transactions (not Pub/Sub) is to be **99.9% highly available** (max: 8.76 hr downtime per year), or to be more available than the capability of any producing application.

2. **Pub/Sub high availability** for *Wave 2* **is to be 85% available.**

3. Consumer access to Request/Reply transactions will be **limited only by the ability of producing applications** to deliver to EIA.

4. Transaction **availability will be based upon the current HA business requirements** and the current implementation of the consuming application(s).

5. EIA is **not responsible for the high availability of producer applications**. EIA will help drive zero latency by integrating with Producer recovery processes.

6. EIA is **responsible for managing the recoverability of data loss on the bus.**

What is EIA's Integration Broker?

Software focused on enabling integration between multiple applications and services.

Asynchronous (loose-coupling) implementation accomplished by use of a Message-Oriented (MOM) Integration Broker technology.

Synchronous (tight-coupling) implementation accomplished by use of CORBA technology.

Dedicated to enabling highly available environment.

What is a Business Process Manager?

Software focused on defining and controlling workflow between multiple applications and/or services.

Maintains state of a process through the full end-to-end lifecycle.

Platform for defining fail-over and error recovery mechanisms.

The "Guardian Angel" of application/service integration.

EIA's primary Monitoring and High Availability Tools

HP OpenView: SNMP-based management environment. Network Node Manager (one important component)

IT Operations (ITO): Part of HP OpenView product family

HP ServiceGuard: Hardware failover and recovery tool

HP MeasureWare: System activity monitor. Collects global, application and process metrics. Forwards alarms to HP OpenView.

BEA Manager: BEA/eLink SNMP-based monitoring agent.

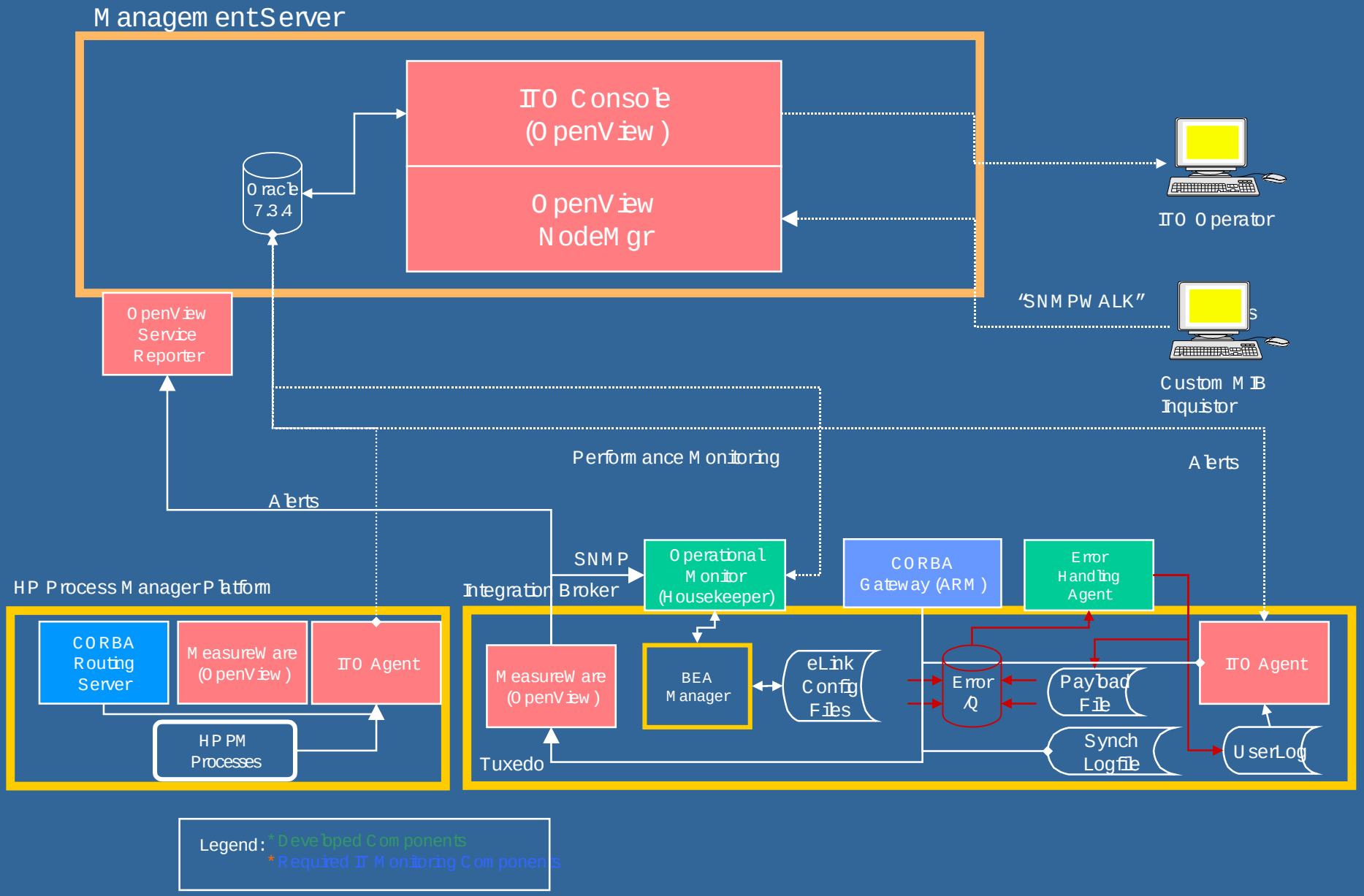
EIA Application Monitoring Design

"Ground Floor going UP!"

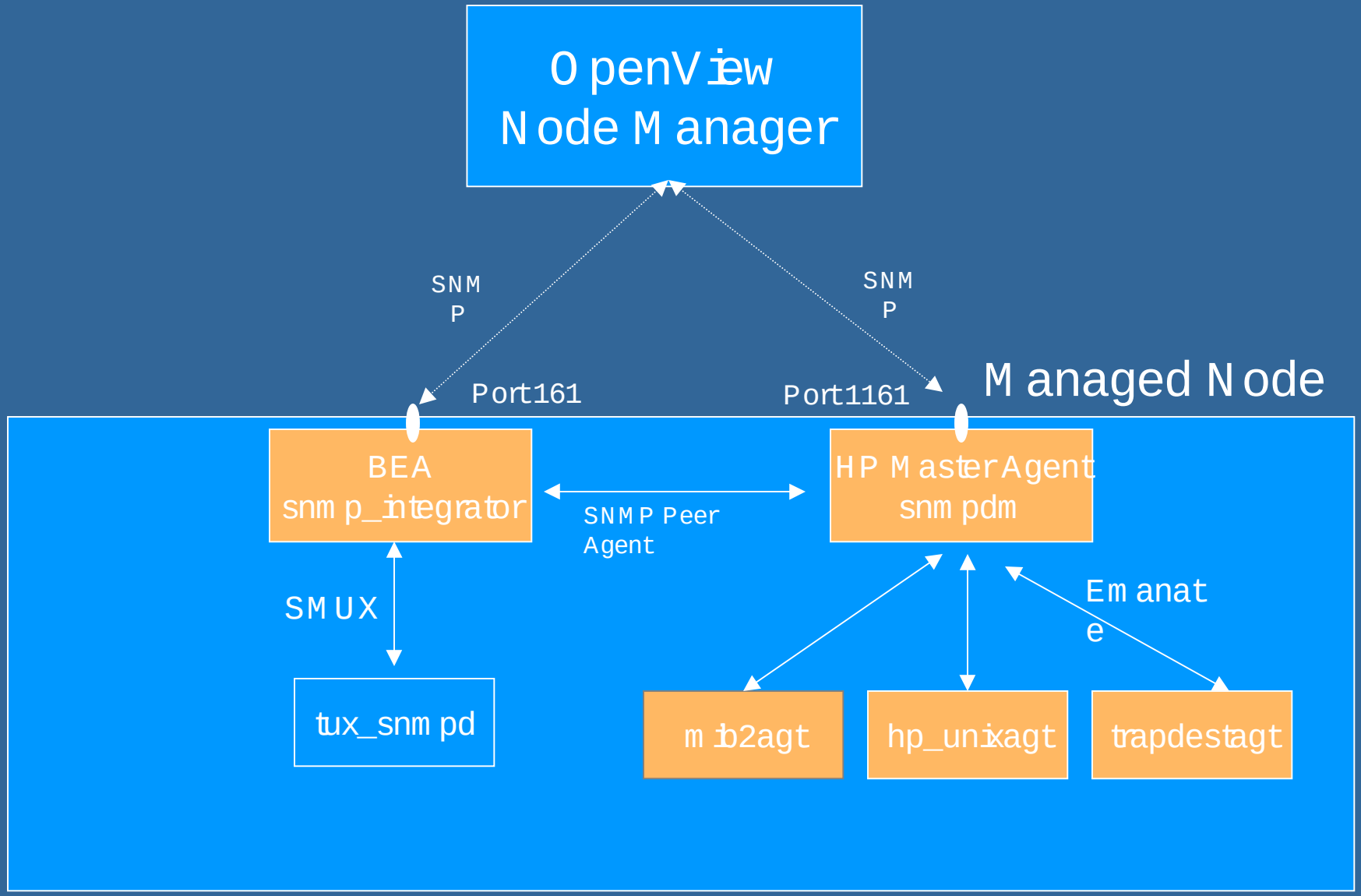
EIA Wave #3 Monitoring Architecture

Internal Design

EIA Application Monitoring Architecture



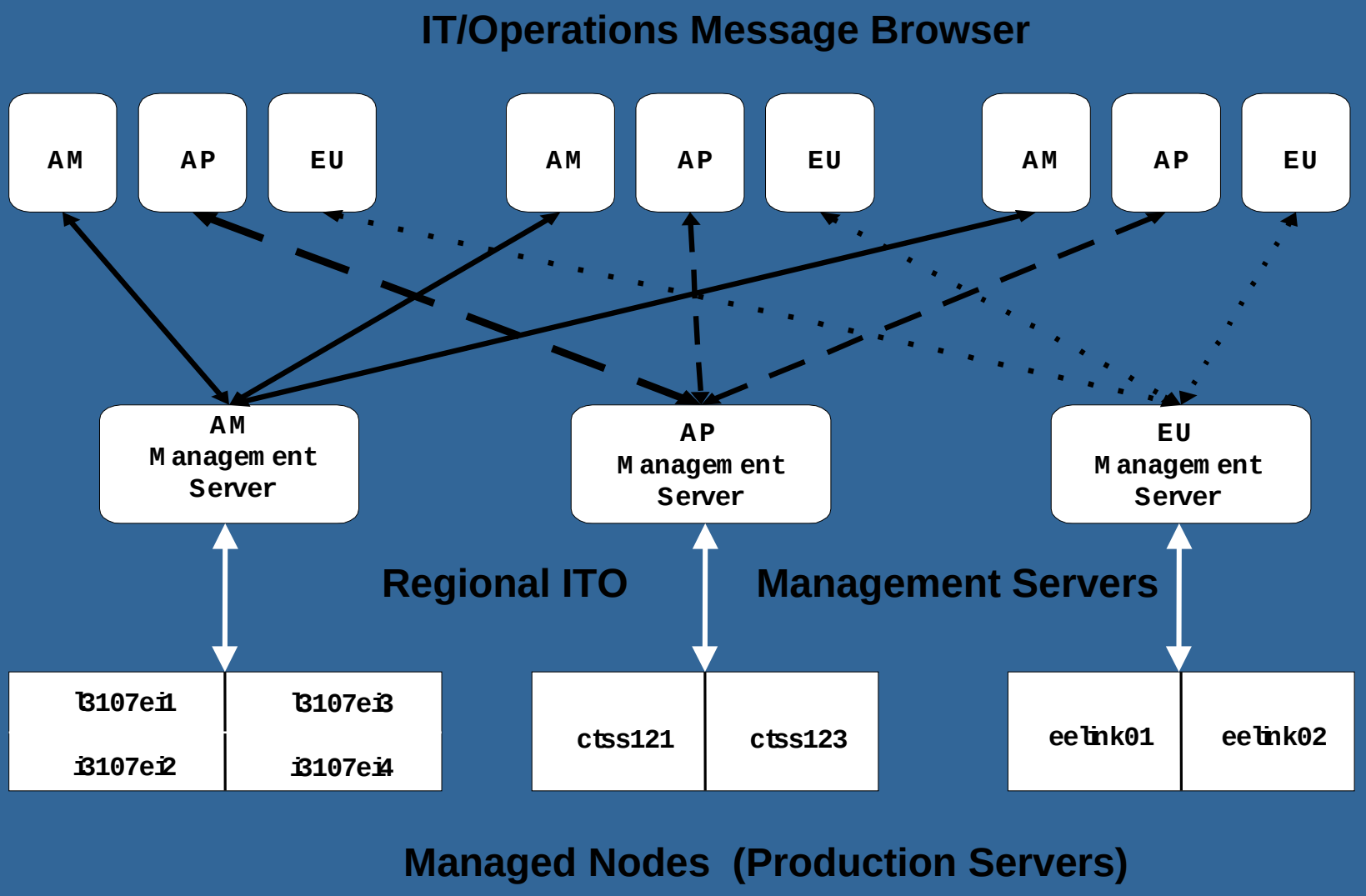
EIA Managed Node Monitoring Architecture



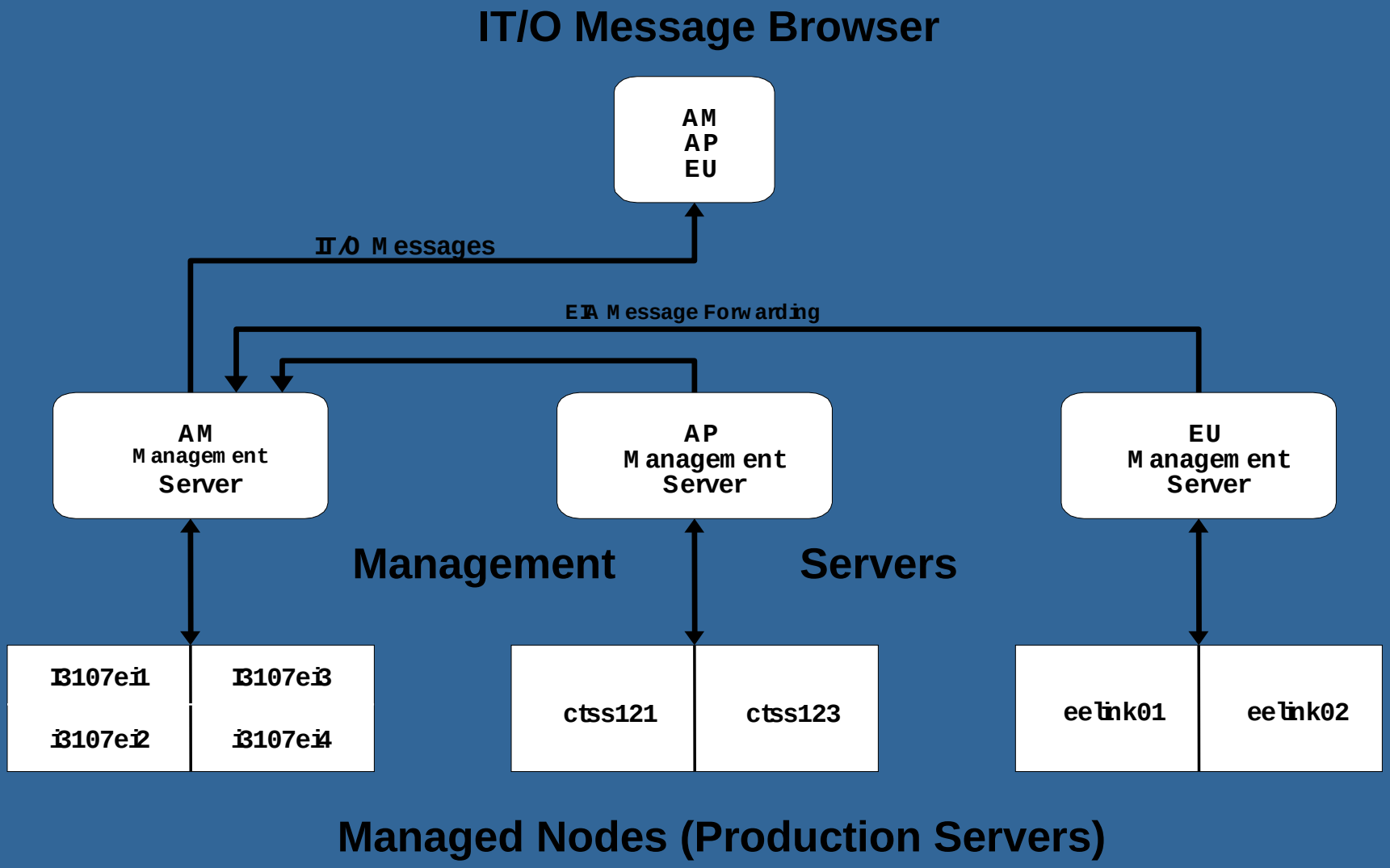
EIA Monitoring Architecture (Top Down)

- EIA High Level Monitoring Architecture
- EIA Components Monitored
- Monitoring Concepts
- Management Server
- Managed Node
- Message Sources
- Measure Ware Agent
- Functional view of IT O
- Monitoring Process Flow

Enterprise Information Architecture
High Level Monitoring Architecture (Current State)



Enterprise Information Architecture
High Level Monitoring Architecture (Vision State)



What EIA Components are monitored?

- Tuxedo processes
- Tuxedo UserLog
- Synchronous Backbone processes (CORBA based)
- HP Process Manager core processes (WorkListServer)
- HP Process Manager supportive processes (ORB, Resource Model)

Monitoring Concepts

- What is a ManagementServer?
- What is a ManagementNode?
- Message Sources
- MeasureWare Agent
- Network Node Manager

What is a Management Server?

- Collects data from Managed Nodes
- Manages and groups messages
- Calls the appropriate agent to start actions or initiate sessions
- Controls the history database
- Forwards messages
- Deploys the IT/O agent software

What is a Managed Node?

- System s monitored & controlled by IT/O Management Server
- Managed by installing & running agent processes
  - Agent software reads log files and SNMP traps
  - Agent compares all messages against predefined conditions
  - Capable of suppressing duplicate messages

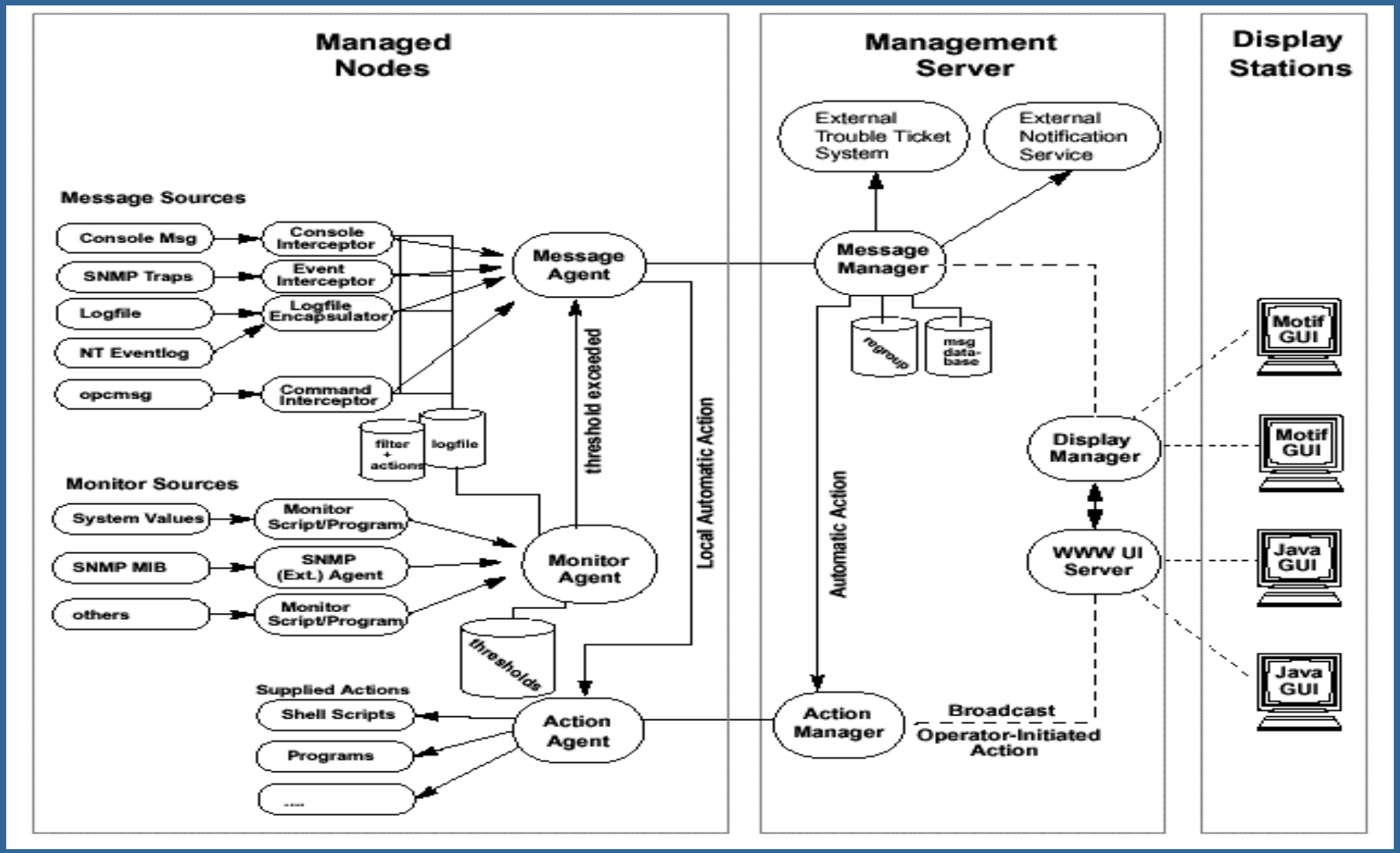
Potential Message Sources

- Logfiles (eLink UserLog)
- SNMP MIBs (HPUX 11.0, BEA Manager) (polled)
- ARM (Application Response Measurement) API
- opcmsg function calls (sent directly to ITO)
- MeasureWare Data Source Integration (DSI)

MeasureWare Agent

- Separate product from ITO
- Collects and alarms on performance metrics
- Forwards alarms to the ITO Management Server
- Service Reporter
- PerfView (Performance View)

Monitoring Process Flow



Case Study Conclusions?

Whew! It actually works! Single collection point enabled.

Complex engineering process.

Initially; too many alarms!

Better automation required to succeed in maintaining High Availability goals.

Suggest stabilizing designs using best-of-breed technologies (SNMP).

MUST be designed up-front during development, not after deployment!

Case Study Next Challenges?

Improve pro-active design model and functionality.

Integrate standards-based monitoring architectures, in particular the (J2EE) Java Management Extension (JMX) into the existing monitoring architecture.


hp
invent