

Managing the Management: CORBA-based Instrumentation of Management Systems

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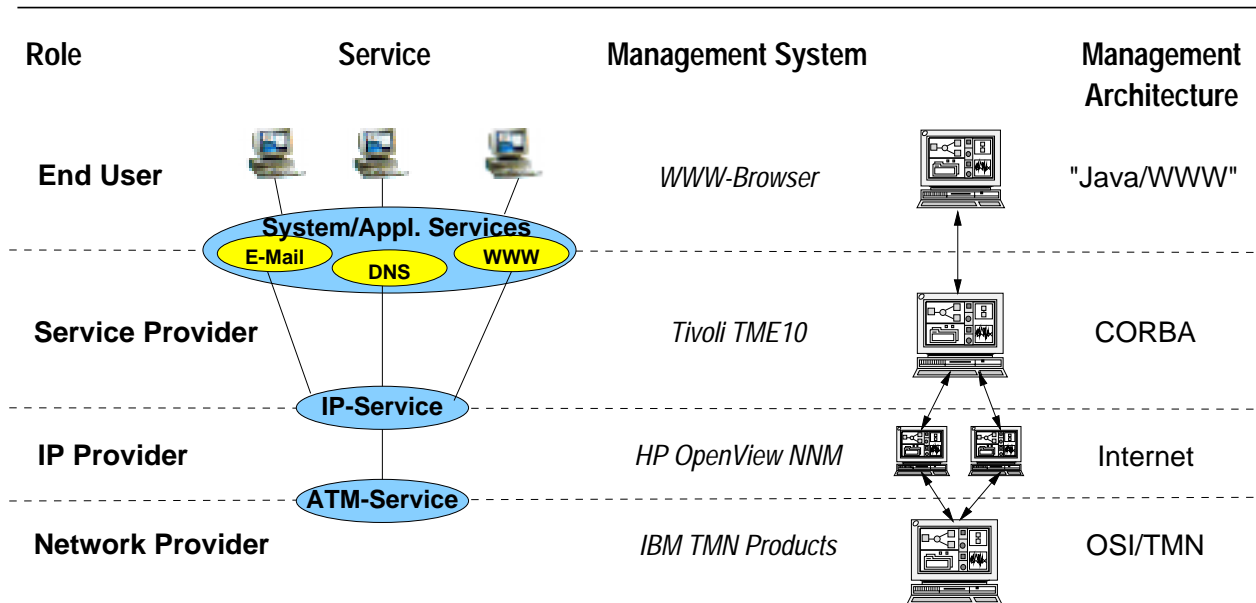
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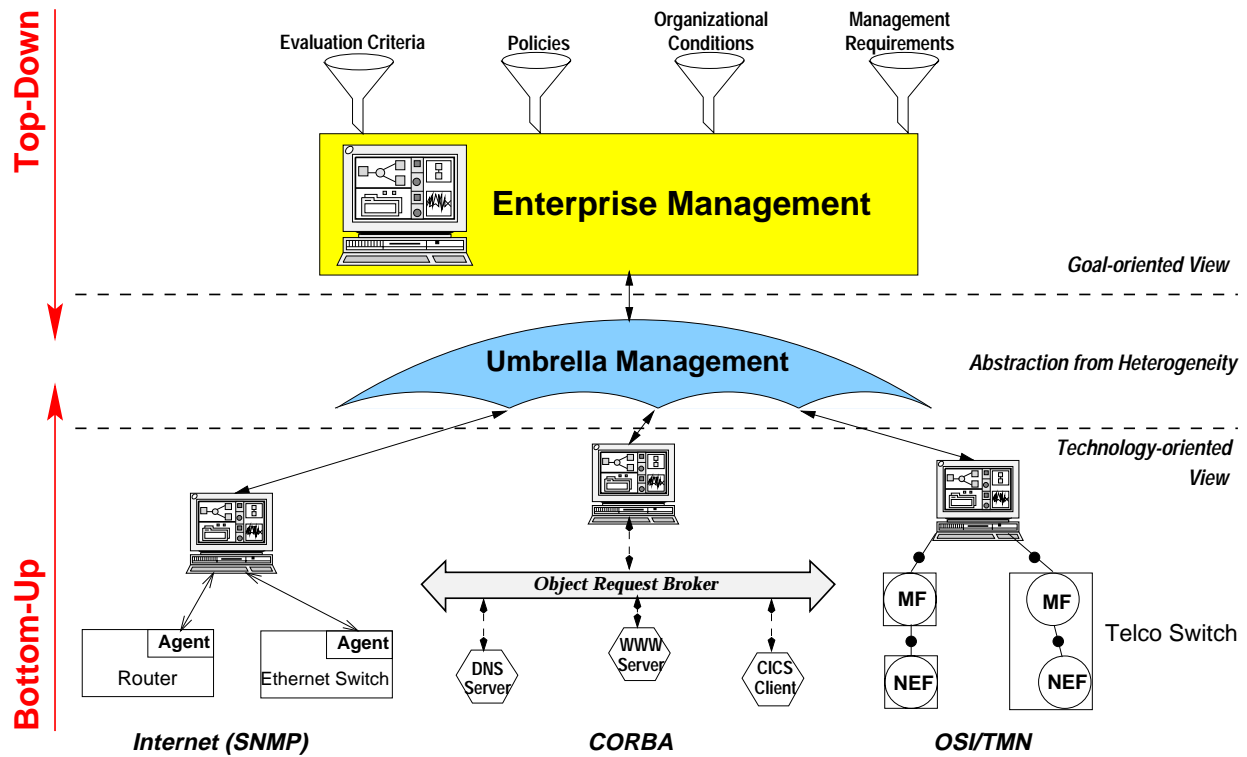
Session 14: Distributed Object Platform

The Need for Management System Instrumentation



- ▶ How to achieve Interoperability between Management Systems?
- ▶ How to enable Management of Management Systems (Interworking)?

Umbrella Management: Achieving Interoperability

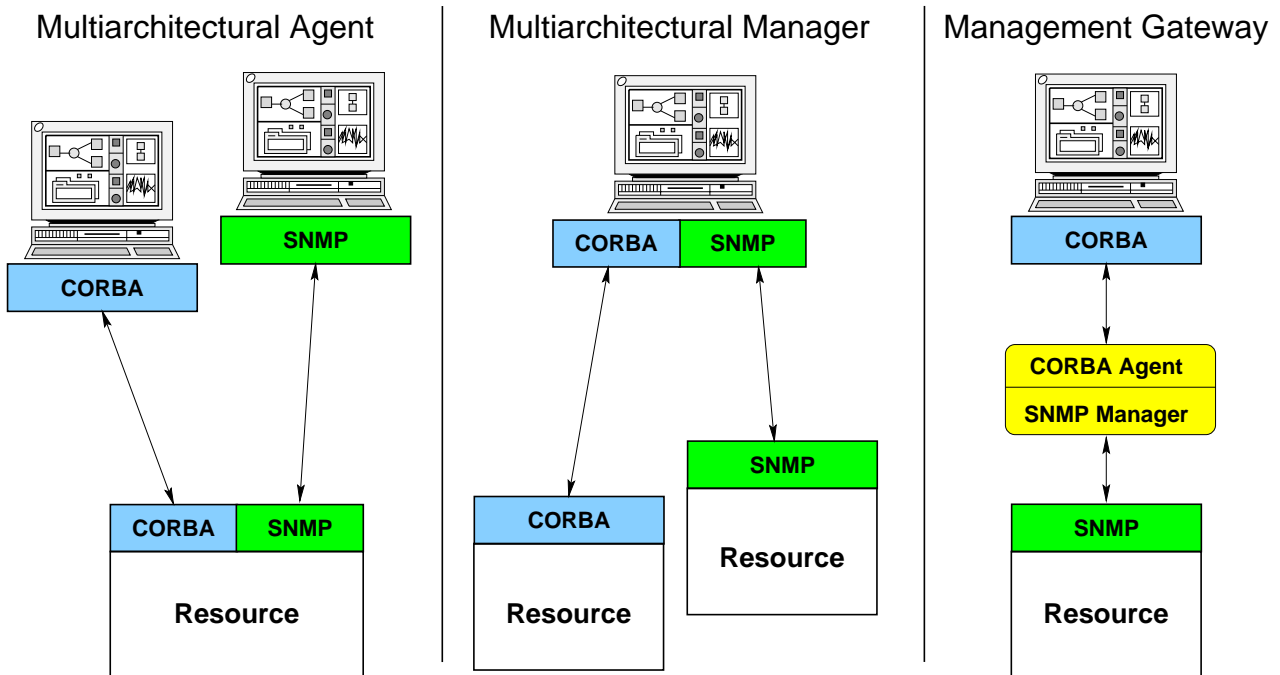


2. Umbrella Management

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Alternatives for Umbrella Management



2. Umbrella Management

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Evaluation of the three Umbrella Management Approaches

Integration Approach	Requirements / Criteria									
	No Modifications applied to Manager / Agent	Customization by Customer	Transparency for User	Openness / Standardization	Flexibility w.r.t. Extensions	Implementation Effort	Tool Support	Ability to automate	General Usability	
Multiarchitectural Manager	○	+ ○ ○	++ + +	++ + +	++ - +	++ + ○	-- +			
Management Gateway	++	++ ++ +	++ - +	++ + ○	-- ○					
Multiarchitectural Agent	○	- ++ --	++ + ○	-- ○						

Determining the Base Classes of the Inheritance Hierarchy

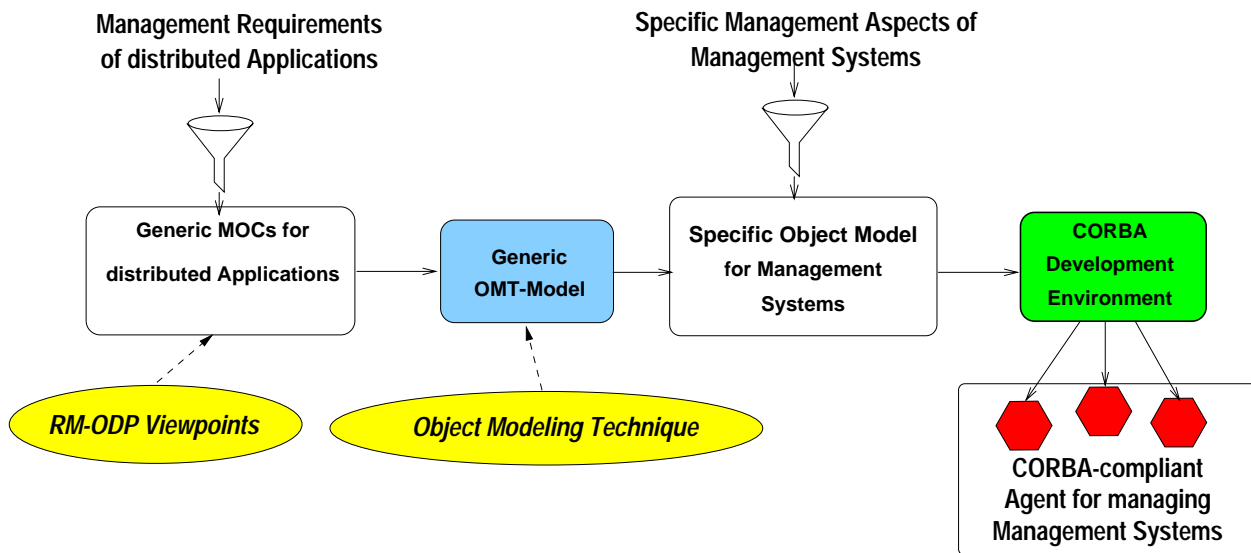
- ▶ *Management is a special Kind of a distributed Application*
 - Is there a common Set of Base-MOCs valid for all distributed Applications?
- ▶ Requirements for a Framework of Terms & Notions:
 - suitable for all Applications
 - unbiased w.r.t. Operating Systems / Runtime Environments
 - unbiased w.r.t. Management Functional Areas
 - suitable for all Management Architectures & Applications
- ▶ **Use notions of RM-ODP**
 - meets the above Requirements
 - standardized
- ▶ I.e. RM-ODP Concepts form the Basis of Generic Management Models

Suitability of RM-ODP Computational / Engineering Viewpoint Languages

Role	Name	Example	ODP Term
Host <i>hosts</i>	Workstation	<i>ibmlab1</i>	Node
Software System <i>has</i>	Management Platform	<i>NetView for AIX</i>	(Package)
Software Module <i>instantiate</i>	Platform Topology Service	<i>GTM</i>	Computational Object Template
Running Service <i>consists of</i>	Platform Topology Service	<i>GTM</i>	Computational Object
Process <i>consists of</i>	Topology Daemon	<i>gtmd</i>	Capsule
Thread	N/A	N/A	Cluster

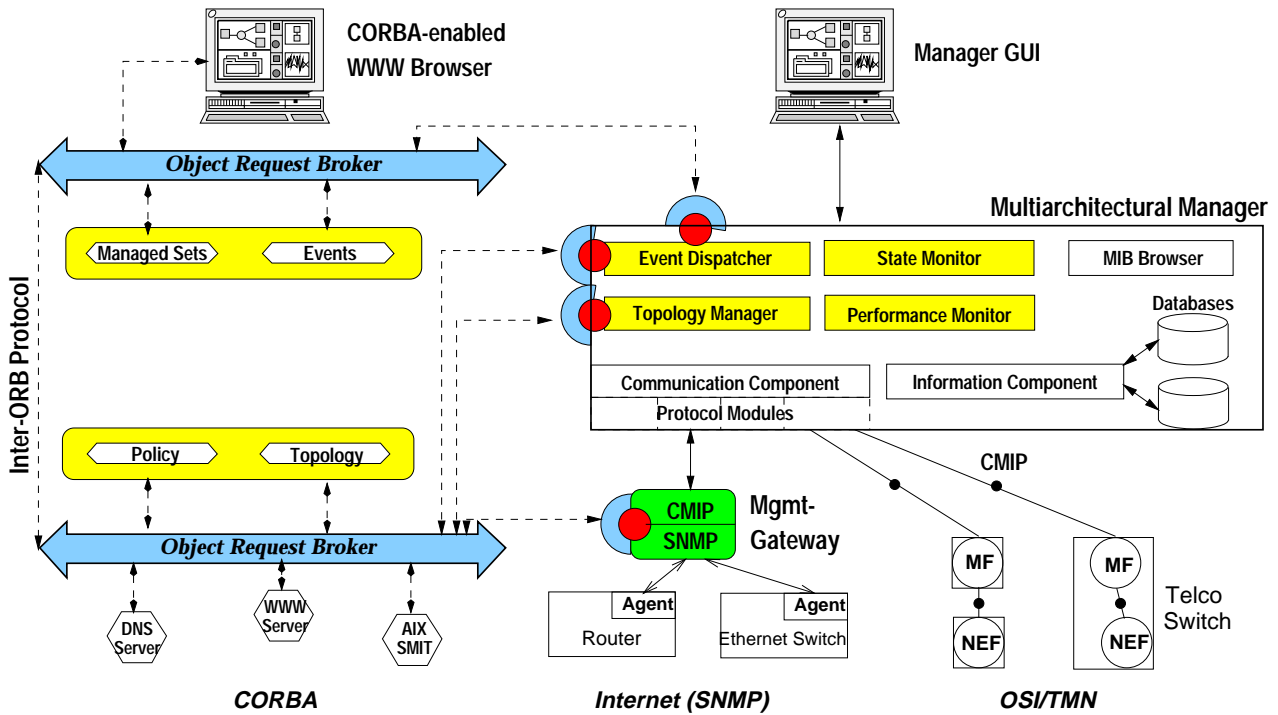
- ▶ ODP Viewpoint Languages may serve as base MOCs for Inheritance Hierarchy

Management Instrumentation: Design Methodology



- ▶ Management Models: Large Amount of Information at Top of Inheritance Hierarchy
- ▶ Design Process eased by CASE Tools (Re-engineering, IDL Descriptions)

Overview: Prototype Implementation

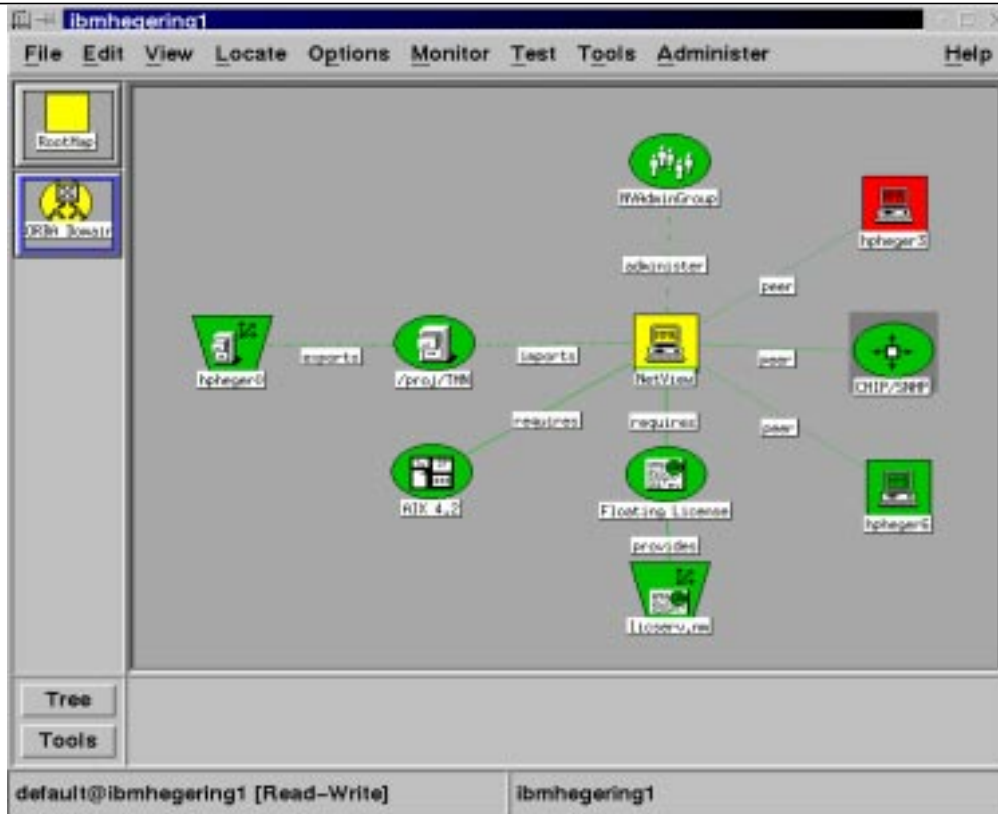


4. Implementation

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Platform-based Management of Management Systems

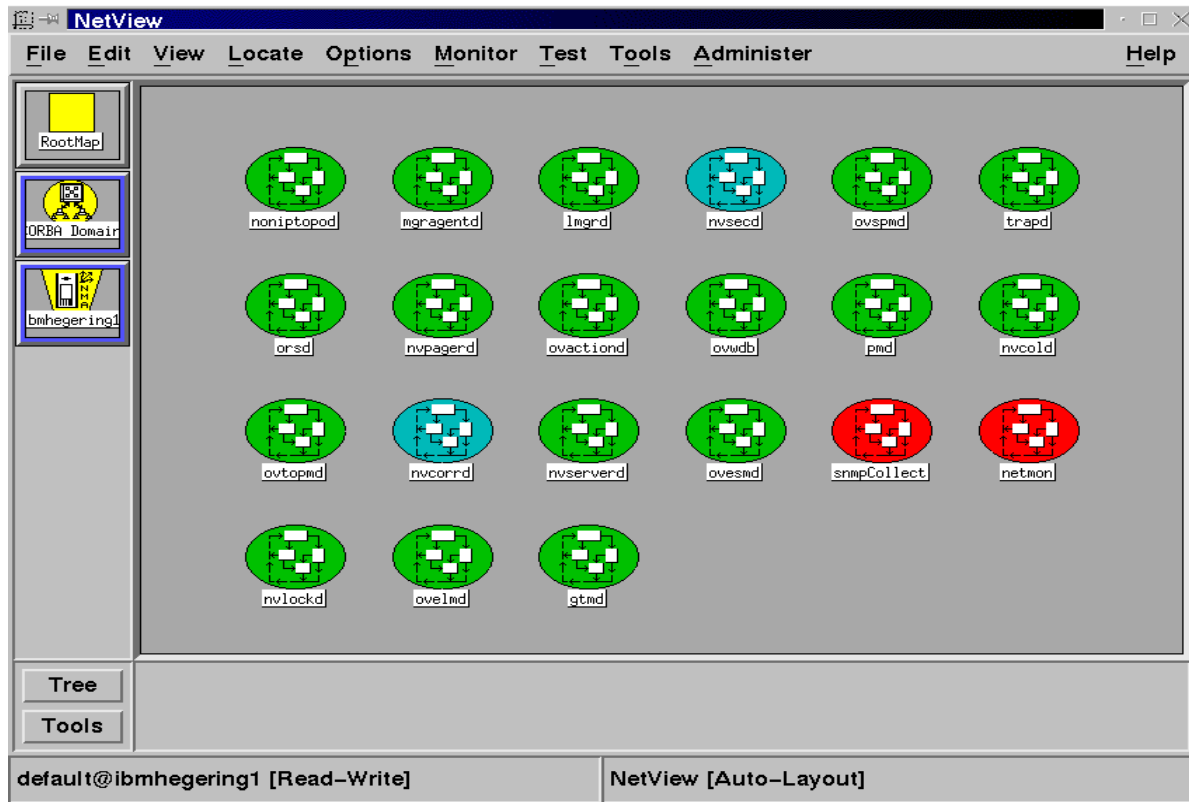


4. Implementation

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Control of the Management Systems Process State



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MNM
TEAM

"Lessons learned" and Outlook

- ▶ Heterogeneity of Management: Different, non-interoperable Management Frameworks
 - *Established Umbrella Management; Evaluation of Alternatives*
- ▶ Most complete Integration of different Frameworks achieved through Gateways
- ▶ Gateways are a specific kind of Management Systems, Management needed
 - *Definition of a MIB for Management Systems and Gateways*
- ▶ Generic MOCs derived from RM-ODP guarantee minimum Amount of Mgmt. Information
 - *Management Systems and Gateways, NFS, NIS, WWW*

Further Research Questions:

- ▶ Generic Application Management based on RM-ODP Viewpoint Languages
- ▶ "Self-managing Systems": Use of Java Management Extensions promising