

web services:
designing and developing for manageability

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objectives

- to gain an appreciation for real-world challenges
- to understand how management techniques can be leveraged throughout the software development lifecycle
- to learn about products that provide top to bottom management and monitoring

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the evolution of application development

1965 - 1980	1980 - 1995	1995 - 2000	2000 - future
Custom Applications	Custom Applications	Custom Applications	Web Services Custom Applications
		Application Server	Application Framework
	DB Server	DB Server	Application Server
OS	OS	OS	DB Server
			OS


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management challenges

web service development =


- global distribution
- + global load
- + unpredictable transaction paths
- + expectations of "web speed" development
- + application brown-outs
- + integration with remote callers
- + service level agreements covering QoS

= a new set of challenges!



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management challenges




```

    graph TD
      e2e[e2e response] --> internet
      e2e --> webserver[web server]
      e2e --> appserver[app server]
      e2e --> database
      e2e --> network[network segment]
      e2e --> legacy[legacy app]
      internet --> ISP
      internet --> desktop
      internet --> firewall
      webserver --> webpage[web page]
      webserver --> DNS
      webserver --> DHCP
      appserver --> JSP
      appserver --> ASP
      appserver --> O/S
      database --> EJB
      database --> COM
      database --> process
      network --> SQL
      network --> path
      path --> switch
      path --> router
      legacy --> mainframe
  
```


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a top to bottom look

your customer or end-user



end-user "top-down"	customer experience mgmt service level management
transaction "bridging the gap"	rapid problem resolution
infrastructure "bottoms-up"	event management resource management



your back-end infrastructure

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the real world

- “Developers create technology that help their company succeed - **but what happens when the application fails or breaks**....middle of the night emergency calls to the developer become non-existent when the right management infrastructure (like Openview) is in place. In addition, connection to **application management tools** and virtualisation systems **become essential as web services transactions becomes more prevalent**, and **tracking and tracing** becomes a **critical part** of the transactions integrity”
 - Paul Nerger, CEO Market Magic Consulting

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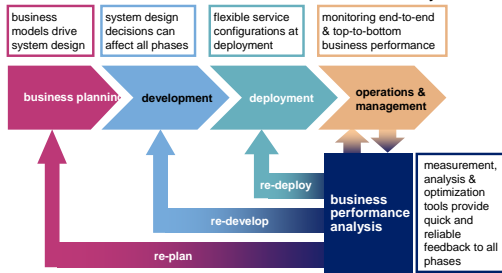
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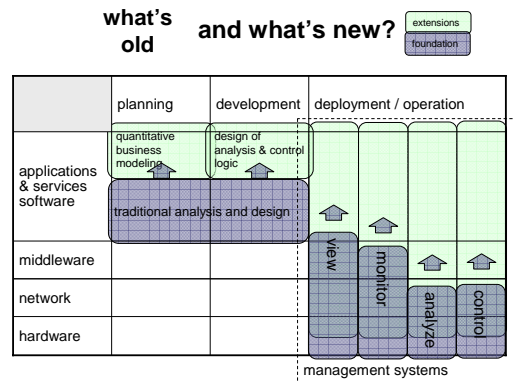
close the loop at every step of the lifecycle

make use of all available sources of *feedback* and create the means to exercise *control* effectively



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what's old and what's new?



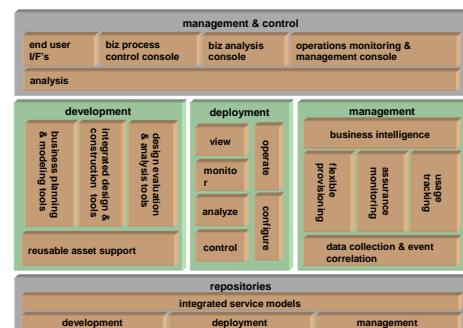
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building intelligent feedback & control

view	<ul style="list-style-type: none"> measurement instrumentation included in design process instrumentation specs driven by business requirements
monitor	<ul style="list-style-type: none"> critical thresholds monitored to ensure timely responses and determine impact of outages
analyze	<ul style="list-style-type: none"> instantaneously assess and project business performance calibrate and validate models of customer behavior business analytics enabled by designed-in data collection business logic can automate adaptive responses
control	<ul style="list-style-type: none"> use feedback performance results to: <ul style="list-style-type: none"> refine deployment parameters revise design choices revisit business decisions

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intelligent business IT reference model



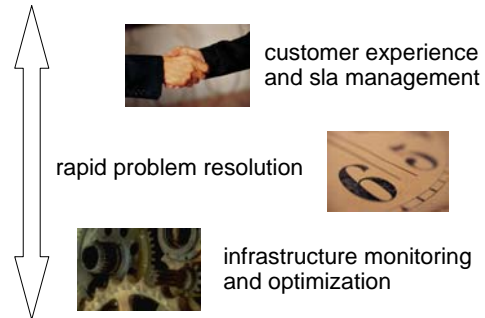
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customer needs



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SLA defined



a Service Level Agreement (SLA) is a formal contract between the provider and customer guaranteeing certain levels of performance or quality of service

- web services makes SLAs more challenging because of the complexities in a distributed environment
- SLAs will become more important as customers begin paying for access to the web services

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customer experience and sla management



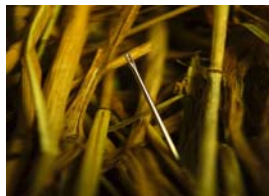
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internet services & web transaction observer

set and measure SLA's for availability and performance

- ▶ measure, monitor and report against service level objectives
- ▶ monitor standard protocols via simulated transactions or real transactions providing last-mile details
- ▶ monitor custom applications through custom probe kit or recorder/playback

rapid problem isolation



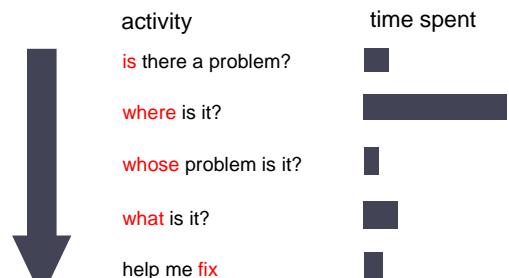
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transaction analyzer

pinpoint bottlenecks in J2EE and DNA applications

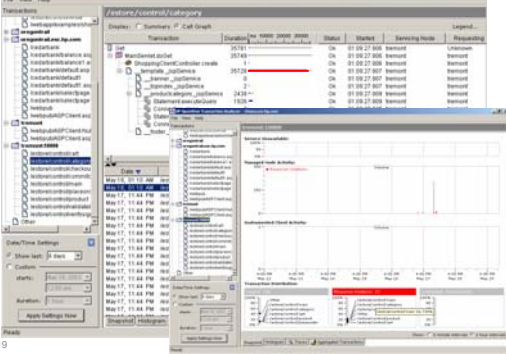
- ▶ analyze transactions from the client, over the network, and throughout the web application environment
- ▶ transactions understood at the most "atomic" level (EJB, COM objects)
- ▶ automated transaction discovery dramatically reduces configuration
- ▶ non-intrusive transaction analysis eliminates app instrumentation
- ▶ response time decomposition and baselining quickly pinpoint the bottleneck

reducing time to recovery



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OVTA – the big finger pointer



infrastructure monitoring & optimization

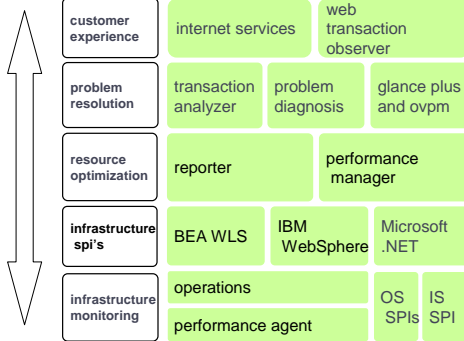


monitor and optimize

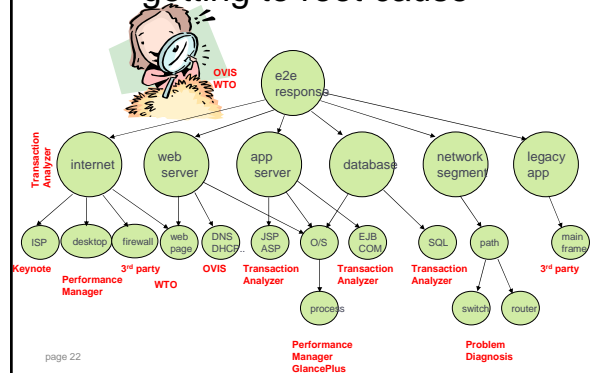
detect problems before they affect users

- ▶ smart plug-ins for BEA WebLogic Server, IBM WebSphere, Microsoft DNA
- ▶ immediate notification of critical failures, messages and events
- ▶ early warnings of bottlenecks with annotation reports
- ▶ add your own performance metrics
- ▶ service maps provide impact analysis
- ▶ easy performance graphing and hourly, daily, weekly reports

building block flexibility



getting to root cause



key points to remember

- web services make a complex world even more complex
- design in your business performance goals at the beginning
- problems can often be resolved proactively with tools that identify and even fix management problems at any phase of the lifecycle
- look at the bigger picture!
 - Service Management means top to bottom management – from customer experience through infrastructure monitoring

Thank You



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- **Offsite media storage**
- **Electronic Remote Data Backup (eRDB)**
- **Data Protection & Disaster Recovery**
- **Records Management**
- **Intergrated Documents Management Solutions**
- **Secure Destruction Services**
- **Consultancy**

next steps?



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