Autonomic Computing

Self-Managing I/T Infrastructure

Alan G. Ganek
Vice President, Autonomic Computing
IBM Software Group
The Good News

Integrated Circuit Performance Trends

# Transistors per Chip

- Logic Density

- 1MHz
- 10MHz
- 100MHz
- 1GHz
- 10GHz

Page 2
The Bad News: **Complexity**

**Complex heterogeneous infrastructures are a reality!**

- Dozens of systems and applications
- Hundreds of components
- Thousands of tuning parameters

- Internet Firewall
- Load Balancer
- Cache
- DNS Server
- Web Server
- Web Application Server
- Data Server
- Storage Area Network
- BPs and External Services
- Existing Applications and Data
- Business Data

**The Bad News:**

- Dozens of systems and applications
- Hundreds of components
- Thousands of tuning parameters
Price performance gains in technology are more than offset by the scale and complexity of deployments.

**The e-business IT Infrastructure Challenge**

- **Requirements**
  - Reduced Cost
  - Better QOS
  - Quick Adaptation to Change

- **Self-managing systems are a necessity!**
The Autonomic Nervous System Monitors and Regulates:

- Breathing Rate
- Heart Rate
- Blood Pressure
- Blood Sugar
- Temperature
- Tear Production
- Pupil Dilation
- Blood Vessel Dilation
- Digestion
Autonomic Computing Characteristics

Self-configuring
Adapt automatically to the dynamically changing environments

Self-healing
Discover, diagnose, and react to disruptions

Self-optimizing
Monitor and tune resources automatically

Self-protecting
Anticipate, detect, identify, and protect against attacks from anywhere

Towards self-managing systems...
Structure for Autonomic Computing

Autonomic Tools & Services

Standards Based Instrumentation, Monitoring, & Communication

Required: a holistic approach
- Proactive, policy-based, automated management
- Automation & manageability enablement at each system layer
- Federated heterogeneous components interacting cohesively
The Autonomic Computing Challenge

- Heterogeneous infrastructures are a reality
- Self-managing systems are a necessity
- Innovative technology will be key

- Problem has been with us for a long time and will not be solved overnight
- IBM is committed to attack this challenge across our broad portfolio of technology, products, and services
- Seek participation of customers and industry partners, plus academic, government and industrial research labs
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