

Course: Self-Healing System

Discussion on March 12, 2003

- 1) Why SHS?
 - a) Rational
 - We can't cover all possibility at design time. The traditional practice doesn't work when the system become more complex.
 - Manual configuration just doesn't scale as the system grows.
 - b) What are the drivers?
 - IBM wants to eliminate the manual effort. It want to improve complexity management
 - The Moore's law – Things cheaper and labor is becoming relatively expensive.
 - The further level the autonomic operations go, the variable costs are converted to fix cost.
 - c) What is the different between Predictive and Adaptive
 - Predictive: SLA layer. Identify the problem but still can't do automatic action. The analyst is required to fix the problem
 - Adaptive: SLA layer: the system automatically adapt itself
 - d) What is the role of SLA : ?
 - It is use to describes the requirement for client ex. Latency
 - in Autonomic computing it concern with architectural agreement.
 - Requirement between user and provider. There is the technical requirement for example “The client can accept certain amount of down time to buy the service.
 - On the other hand, the provider may have the requirement to increase revenue (totally different).
 - e) Matching SLA between Client and Provider
 - Service bring out the contract
 - Provider provide level of service at different price)
 - Client provide the requirement how much he wants to pay for diff. Level of service
 - f) What is going to be online and offline SLA?
 - i. Offline is the codification part of SLA
 - ii. Online is the agreement that need to be met during run-time
 - g) What happen if some problem occur?
 - i. Basic: human have to figure our what happen and fix it.
 - ii. Manage: system tell what is the problem according the SLA
 - iii. Predictive: system know the problem and suggest what to do
 - iv. Adaptive: system knows the problem and able to fix it.

- v. Autonomic: use the policy to optimize the entire cooperation. Use cost benefit analysis to make decision that effect across whole system.

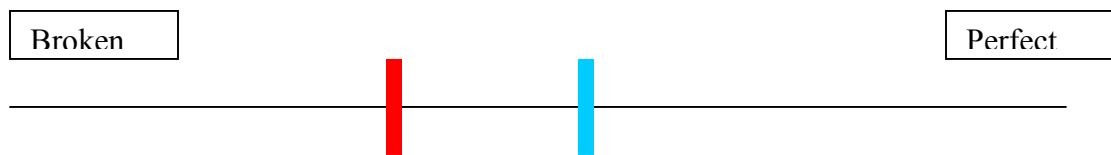
As we move up we

- increase the scope of the analysis
- increase degree of automation
- ability to forecast and prepare for problem

In Autonomic is more abstract view.

- 2) What are the essential characteristic of a SHS?
 - a) Four characteristic are orthogonal???
 - i. Some system may have one but not another

- 3) What is the degree of correctness for self-healing system?



- 4) What are important distinctions?

What are the underlying concern in distinct them?

Self-Configuring	Self-Healing	Self-Optimizing	Self-Protecting
			Look at thing outside in the future

- Internal & External Decision Making => Mechanism in achieving the objective.
- Proactive & Reactive
- Discrete & Continuous
- Environment included decision? Rainbow have the component that look at the whole system and do the adaptation when something's wrong.
- Effect to Human user.

- External should have to different view of the system and uses it to make decision

System and Environment is quite clear distinction

5) Next Step

- a) Talk about architecture based adaptation
- b) Talk about foundation and Vocabulary related work like IBM.
- c) Look at Particular system and framework