

# **Autonomic Networking – Definitions and Design Goals**

**draft-irtf-nmrg-autonomic-network-definitions-01**

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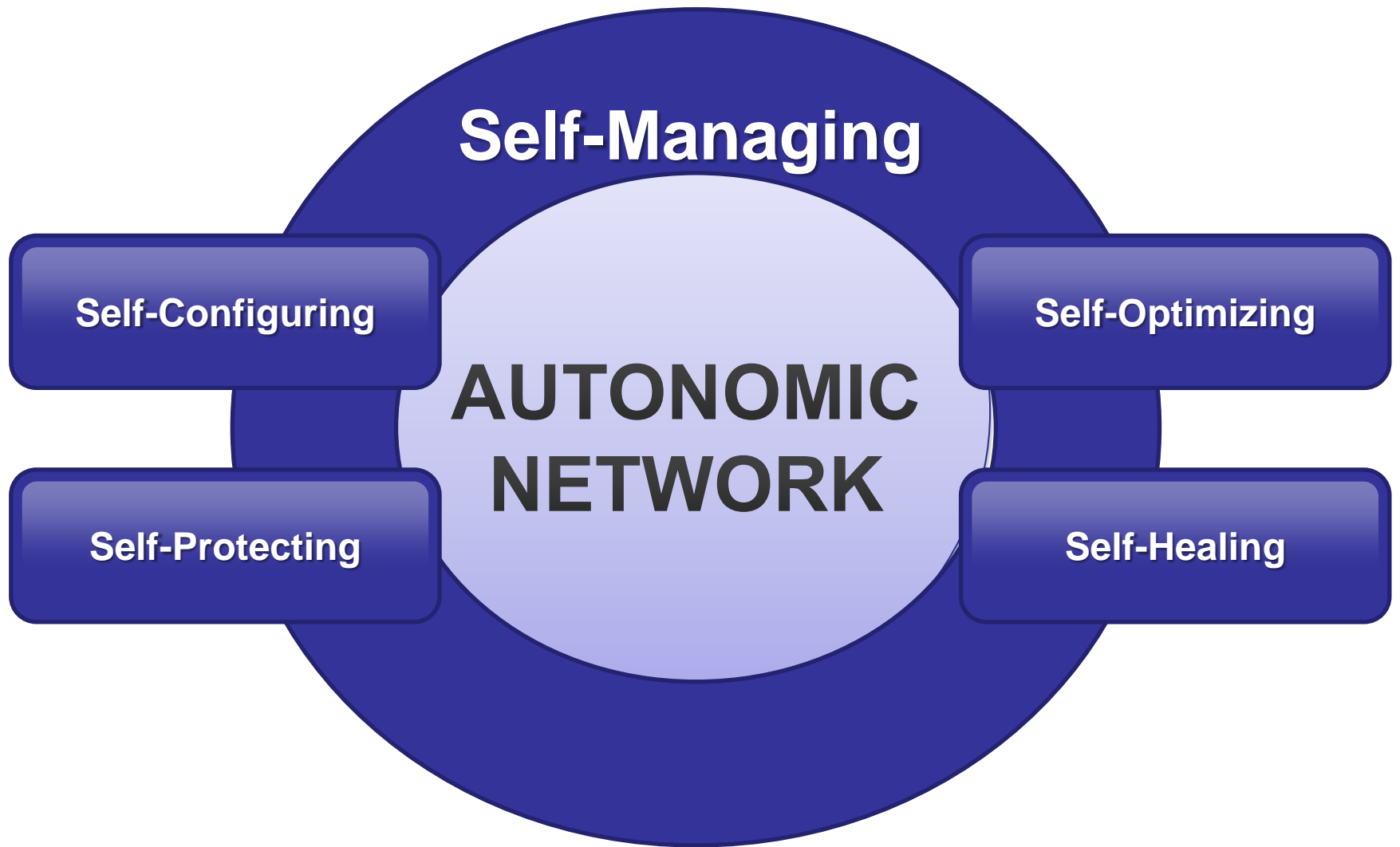
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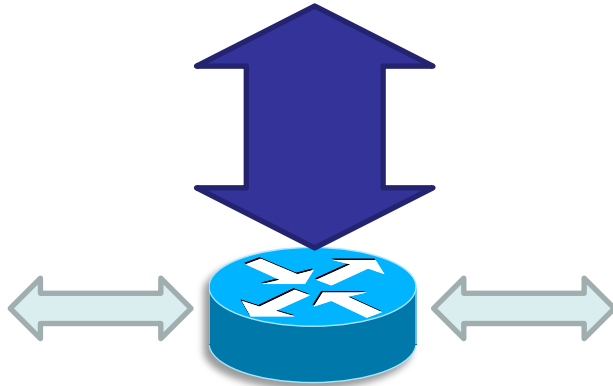
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History: IBM's "Autonomic Computing" (2001)  
<http://www.research.ibm.com/autonomic/>

## Traditional

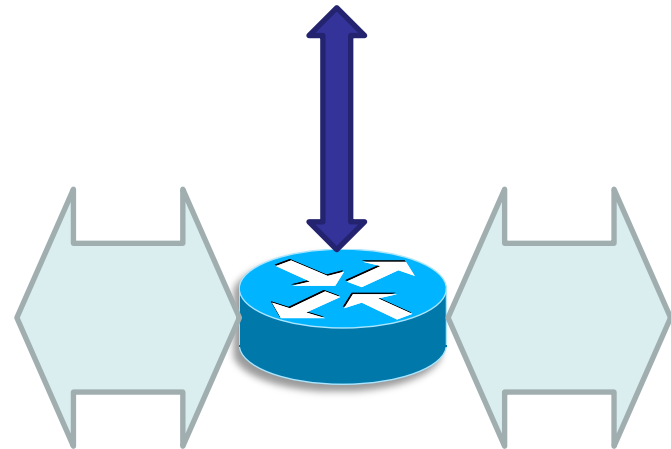
- Configuration
- Monitoring
- Reporting



- Routing

## Autonomic

- Policy and Service Orchestration
- Aggregated Reporting



- Routing
- Discovery
- Autonomic interactions

**Autonomic Networking means:**  
→ Minimize operator interventions  
→ Minimize NMS dependencies

# Changes from -00

- Emphasize autonomic ***functions*** rather than *nodes / networks*.
  - Bottom up approach
- Emphasize ***distribution***.
- Emphasize goal of a ***Common Autonomic Networking Infrastructure***
  - New section 3.8
- Removed (empty) section “Guidelines for Case Studies”
  - As discussed on list.
- Some editorial changes

# Changes from -00

## Change in Abstract:

- **The high-level goal for an autonomic function is to have minimal dependencies on human administrators or centralized management systems. This usually implies distribution across network elements.**

# New Outline

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[...]

# **SLIDES FROM PREVIOUS DRAFT (FOR REFERENCE)**

# Definitions (1)

- **Autonomic: Self-managing (self-configuring, self-protecting, self-healing and self-optimizing); however, allowing high-level guidance by a central entity, through intent.**
- **Intent: An abstract, high level policy used to operate the network autonomically. Its scope is an autonomic domain, such as an enterprise network. It does not contain configuration or information for a specific node. It may contain information pertaining to nodes with a specific role.**
- **Autonomic Domain: A collection of autonomic nodes that instantiate the same intent.**



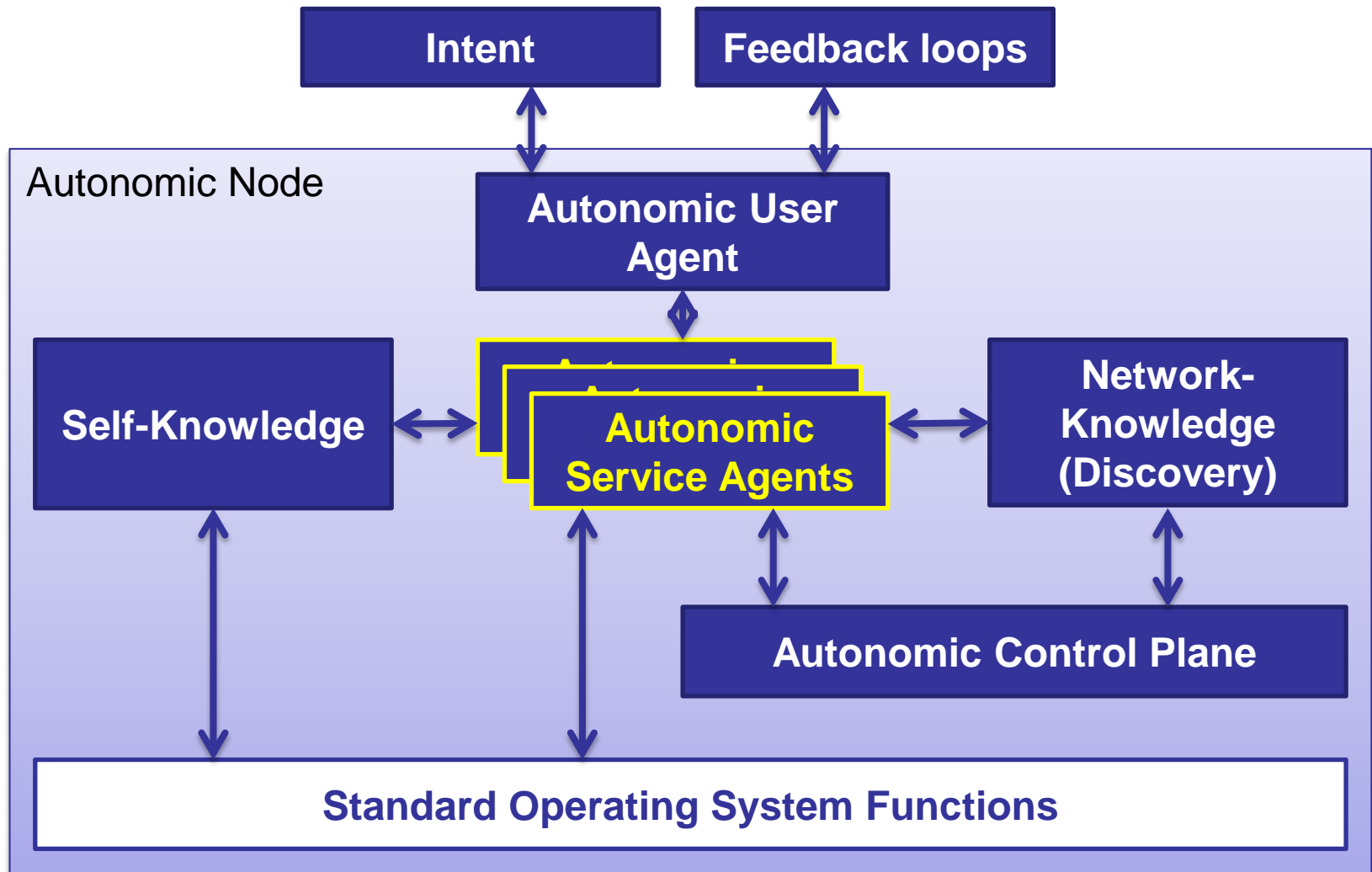
# Definitions (2)

- **Autonomic Function:** A function which requires no configuration, and can derive all required information either through self-knowledge, discovery or through intent.
- **(Fully) Autonomic Node:** A node which employs (exclusively) autonomic functions. It may operate on any layer of the networking stack. Examples are routers, switches, personal computers, call managers, etc.
- **(Fully) Autonomic Network:** A network containing (exclusively fully) autonomic nodes.

# Non Design Goals

- **Eliminate human operators**
- **Eliminate emergency fixes**
- **Eliminate management control and central policy**
- **Eliminate existing configuration tools**
- **Eliminate existing network management systems**

# Reference Model of an Autonomic Node



# Need for Standardisation

