

Automated Network Service Configuration Management

Abstract – In modern networks the automatic distributed monitoring and configuration management are the basis for ensuring the network desired state. The way they will be integrated in the Future Internet management is still over large discussion, but whatever the approach used, they will be in. Current configuration management frameworks are still very limited, from using centralized management approaches, data models that do not support hierarchical data to management frameworks that deals only with low-level management operations. Besides, they don't perform replication procedures independently of device architecture, software implementation or operating system. A recently standardized network device configuration protocol (NETCONF) provides the network transport facilities for device configuration management. But even using the data definition language YANG true interoperability wasn't achieved because no standard device data models were defined. We propose an automated and distributed network service configuration management system that can be used as a normalized high-level interface to manage network service configuration and easily be integrated as part of more state-of art autonomic management solutions. It uses a network service configuration language to represent configurations of any standard network service defined through a standard-based data model. We also propose the use of ontologies to embed knowledge within the data model, which is used to provide configuration validation through the definition of "service configuration space" and "forbidden configuration".