

## NetYCE company analysis



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NetYCE was spun out of Dutch financial institution Rabobank in 2010, taking with it a generic and productized version of an automated network configuration and change management system the bank had built to handle a very large migration to new network equipment. The bank had identified a fundamental lack of common and consistent processes and systems between three key network organizations: network architects/designers; network engineers; and network operations staff. As a result, the network as designed was not the network as deployed, there was no central, standardized way of working or documented view of network truth and this affected the quality and timeliness of network configuration. In 2001, Rabobank hired the team that would become NetYCE to build a network abstraction and automation platform that would align all three organizations around a unified set of processes and technologies for modeling, implementing and configuring the network.

In addition to running Rabobank's operational networks since 2001 (supporting 1500 local banks, ATMs, offices, data centers, etc.), NetYCE's platform has recently been implemented by further large enterprise customers including the Netherlands Ministry of Defence and some local Service providers. It is also beginning to attract interest from service providers with managed services businesses and large enterprise customers, including KPN, and Schiphol Telematics, Dimension Data in the Netherlands, Liberty Global and Verizon.

Northbound, the NetYCE platform has an XML-based interface so that it can be integrated with a customer portal and/or third-party B/OSS and wider service order management and provisioning processes. Southbound, it communicates with network equipment via CLI, vendor API or NETCONF. The company is currently developing integration with OpenFlow-based SDN controllers. It maintains, however, that its configuration platform can already deliver "90 percent of SDN functionality on top of traditional networks" because its network abstraction layer provides a full and current view of network topology and uses this to automate and orchestrate configuration changes on a large scale across multiple vendors and technologies. NetYCE keeps these changes compliant with original network design rules.

Using NetYCE's GUI-based modeling tool, network architects create an abstract, vendor-agnostic model of their company's network. The model standardizes the rules, network building blocks and naming conventions chosen by the architects and describes the relationships (mappings, dependencies) within the network topology, for example, between services and network elements. NetYCE claims that its modeling tool is more powerful than discovery tools, the best of which typically capture only 40-50 percent of service/network relationships and need to be augmented with manual processes in any case. The GUI modeling tool translates detailed design documents and Visio pictures into database objects. The models generate an abstract and vendor agnostic view of the network within YCE's database at the click of a button, the company claims, where it is ready to be shared by network engineers and operations staff. NetYCE calls this concept 'Design-Driven Networking'.

The abstract network is then used by network engineers to generate and parameterize templates for specific types of network devices. The templates will share all the naming conventions, rules, etc., designed into the model and the same template can be used to drive configurations across multiple different vendor versions of a device. If a customer requires "special" configurations not planned for in the original design rules, these are added to the template and extended back into the model so that they can be used for other customers in the future.

Operations staff use the templates and their associated scripts for day-to-day configuration changes: the platform's delta reporting function compares all service activations pushed to the network with those in its database, identifying non-compliant configurations and alerting the right role/responsibility.

NetYCE has identified several adoption paths for its platform:

- A top-down approach: When an enterprise or service provider customer, like Rabobank, has a lifecycle window of opportunity to deploy greenfield networking equipment and a new configuration management approach.
- "Greyfield" approach: When a part of the network is being redeployed, such as an access layer, for example. The core then remains unmanaged by NetYCE.
- A service-specific approach: When a company wants to model/design a new service and its associated network topology and manage it efficiently. In this case, NetYCE is not aware of the full network topology and only manages the added configurations of the devices associated with the new service.
- A reverse-engineering approach: When a customer wants to discover and abstract its topology and configurations, creating a model it can then use to push configurations back to the network.