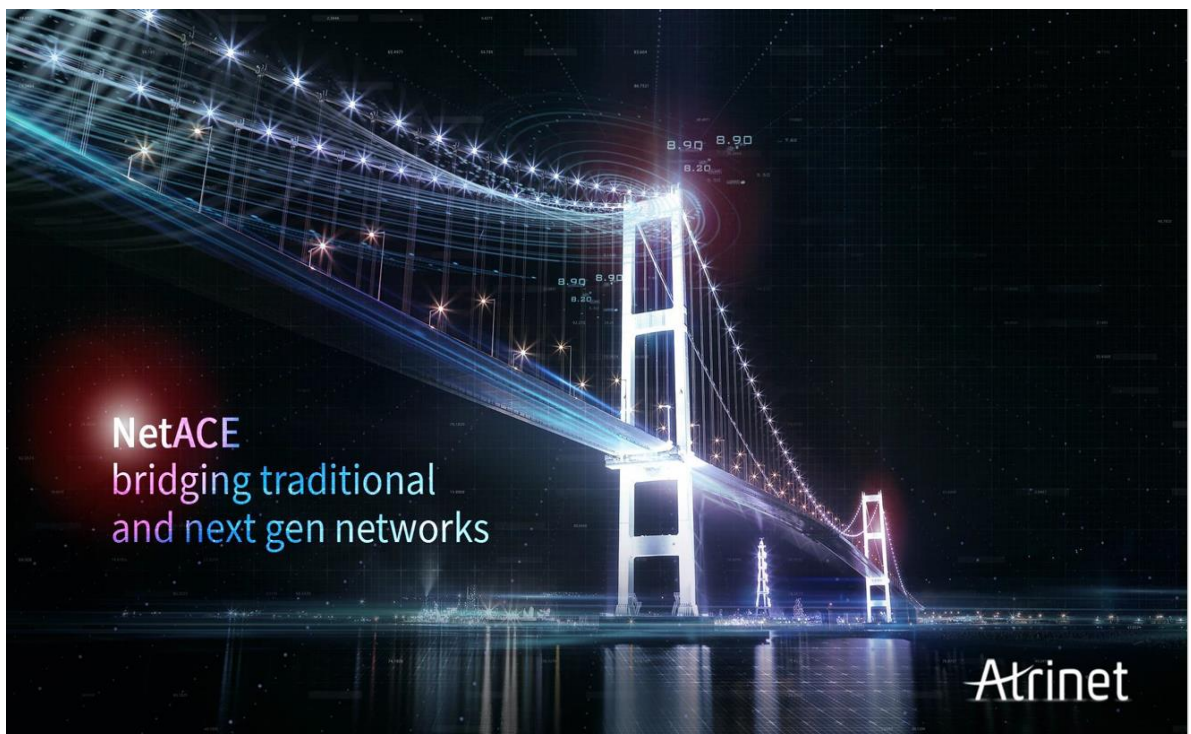


# Enabling Reliable Digital Transformation With Atrinet Network Migration Services

Helping CSPs to Introduce New Equipment, Technology and Capabilities  
Faster, Cheaper and with Less Risk while Supporting Legacy



## Market State

Communications Services Providers (CSPs), Equipment and OSS Vendors are facing unprecedented pressure to provide the technology and services that are driving the incredibly fast growth of our digital economy. New network device and application innovations seemingly emerge every day. Whether it's the expanded feature sets of next generation network elements or new cloud capabilities of virtualized devices, service providers have more options (and reasons) than ever to bring new capabilities to customers and differentiate their offerings that include Software Defined Networks (SDNs) and Network Function Virtualization (NFV).

## Qualities Essential For Reliable and Fast Digital Network Transformation

Integrating new physical or virtual devices into existing networks, planning for future 5G capabilities, expanding toward new technologies such as NFV/SDN, rolling out new services, performing network consolidation and modernizing OSS, are enormously complex and even risky projects for CSPs. In support of this journey, Atrinet has developed a collection of dedicated migration capabilities focused on helping CSPs to design, deploy, operationalize and migrate to next generation telco networks and services.

From our experience gained over the years of close cooperation with CSPs Engineering and Operations, Atrinet believes that the most important attributes of any network migration are the following:

### >> Be Hybrid

Among the main characteristics of any transition is the hybrid mode. Being hybrid means having the capability of moving forward to a new technology or infrastructure while still supporting legacy.

### >> Be Multi-vendor

CSPs, in their current service delivery use cases, are already relying on more than one vendor. But the pressure of operating in a cost-effective and efficient manner brought on by new business challenges, including an explosion in traffic, OPEX growth, revenue and margin considerations, is driving them to explore new technologies and solutions. This means deploying more vendors in order to enable services to be open, hybrid and multi-vendor.

### >> Be Software-defined (SDN)

Creating more efficient, centralized networking management, automated resource provisioning and rapid on-boarding of new technologies and vendors are perhaps the key requirements of next generation networks. This leads to the need for seamless logical representation of network resources (cross-vendor and cross-technology), which is referred to as abstraction. The capabilities of these virtual resources are exposed through open interfaces (API) that influence their behavior on-demand. This is referred to as programmability and automation. CSPs' existing legacy networks must be SDN-ized to operate in this manner and thus become a means of providing a new digital offering.

### >> Be Open

Today CSPs depend heavily on 3<sup>rd</sup> party service groups to deliver complex integration projects. The complexity is brought on by having multiple (and in many cases non-standard) interfaces of existing and new applications and devices that require time-consuming and expensive efforts just to make them talk to each other. To gain more control over a migration project, lower its delivery time and costs and become less dependent on 3<sup>rd</sup> parties, CSPs must reduce the number of such interfaces which should be open and standards-based.

### >> Be Reliable

Network migration is of a critical importance for CSPs and must be carefully planned and executed. Network discovery and understanding, data cleansing and migration readiness assessment are absolutely essential for the precise planning and smooth and reliable migration execution.

### >> Be Agile (DevOps)

To allow rapid and reliable network migration, the migration's runtime execution environment should be open and flexible to ensure fast onboarding of new devices and services and simple definition of migration mapping, logic and rules. Even if something unpredictable occurs during the migration planning or the migration execution itself (something that usually happens), with a few mouse clicks, it can be promptly mapped/fixed in migration models without changing code and entering a prolonged software delivery cycle.

## Our Mission is “Network Migration” and “Legacy Network SDN-ization”

Atrinet is a reliable and experienced independent software vendor (ISV) with a proven track record of delivering complex use cases and projects together with CSP’s Engineering and Operations teams. We provide a complete suite of products and services for legacy network understanding and automation, making traditional networks multi-vendor and SDN-ized, while on-boarding new functionalities and services on the new networks. We help CSPs in their Network Virtualization Transformations by enabling the transition between traditional and new networks quickly, reliably and efficiently.

Atrinet brings to your network migration a team of highly skilled Transition Specialists AMS® (Atrinet Migration Services) and the NetACE SDN-izer® that is based on the NetACE® model-driven framework.

## Atrinet’s Contribution To Network Migration

Usually network migration reflects a situation where a new strategy takes place, and as part of the execution plan, Operators need to find the “best path” for its execution. The best path may include OSS consolidation, NMS/EMS reduction, making the existing infrastructure multi-vendor, programmable and agile, providing a level of automation and orchestration that meets present and future demands, delivering hybrid services, educating Operations and Engineering Teams to use the new world, and more.

When a CSP faces these challenges, Atrinet, through its migration services, offers its extensive industry knowledge empowered with the most flexible technological solutions to lead and carry out the most critical steps of a migration project. We execute any and all migrations including everything from moving vendors and services, to moving from one technology or inventory platform to another.

## Atrinet’s Contribution To Legacy Network SDN-ization

With operators needing to run and manage multi-vendor networks, Atrinet developed a model-driven shim layer called the NetACE SDN-izer® with an open API that makes legacy, closed network devices open SDN-speakers. It drives openness, abstraction and automation across traditional legacy (and new) networks while accelerating the introduction of new features and services.

For instance, we can take Cisco IOS or Huawei CX series devices that only support a proprietary CLI interface and, using the NetACE SDN-izer®, wrap them in a thin, flexible, model-driven layer and API, enabling them to be seamlessly programmed with a standard NETCONF/YANG or via OpenDaylight (ODL).

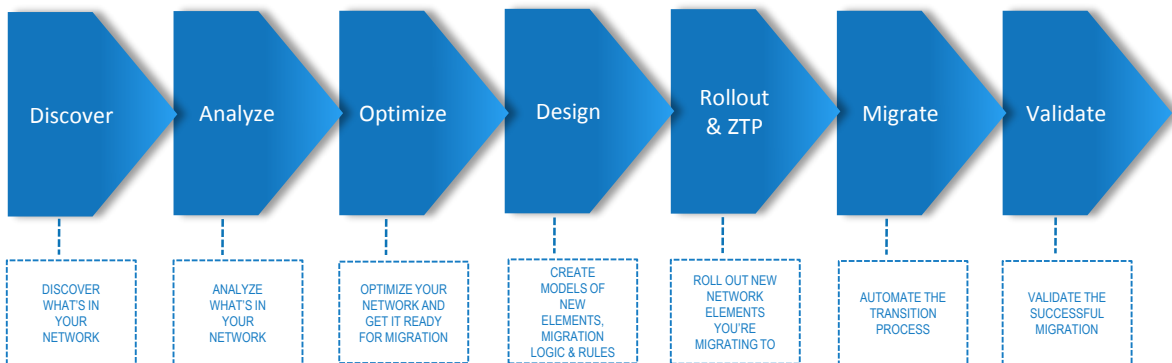
## NetACE® Framework

[NetACE®](#) is a model-driven, DevOps-enabled Network Discovery and Automation Framework that, through its multi-vendor libraries, supports more than 40 vendors. It is easily customizable using a visualized self-service DevOps-enabled design environment that allows the rapid onboarding of new vendors and services (as well as network migration logic and rules) in a matter of days or weeks.

NetACE® is enhanced to execute complex network migration projects (e.g. migrating to a new vendor, technology or inventory platform) through a set of model-driven capabilities and open APIs. These include brownfield network (and service) discovery, network understanding, insight gathering, reporting, migration readiness assessment, zero touch provisioning (ZTP), network automation and a unique ability to make legacy, closed, network devices SDN-speakers, enabling non-SDN devices to speak SDN.

NetACE® Use Cases	As a Service	As a Product
Network Discovery+ (Network Understanding Services)	✓	✓
Network Rollout Automation and Zero Touch Provisioning (ZTP)	✓	✓
Network Migration Services AMS® (to a new vendor, technology or inventory platform)	✓	
Network-understanding-driven Mass Configuration and Network-wide Feature Enablement	✓	✓
Multi-vendor NMS / NMS Consolidation / OSS-in-a-Box		✓
Multi-vendor SDN Enabler / Legacy Networks Abstraction and Programmability (NetACE SDN-izer®)		✓
Multi-vendor Network Service Automation		✓

## Atrinet Migration Services - AMS®



There is much more to network migration than just reading a configuration from one device or server and mapping it to new elements. That's why, in addition to NetACE® itself, Atrinet offers a suite of dedicated migration services (AMS®) to complement NetACE® capabilities and accelerate network migration projects with methodology and experience. Atrinet network and software professionals will help you on site or remotely to build and smoothly execute a precise migration plan based on network discovery and understanding insights gathered in real-time.

## >> Discover Existing Network

Before any migration project, an existing network should be discovered including all its physical and logical resources and provisioned services. You must "understand" your network to avoid any surprises during the migration itself and produce a truly reliable and executable migration plan based on what's really out there (and not what you think is out there).

For example, it's very important to understand actual dependencies between provisioned services and corresponding in-use resources. In this way you can accurately advise your customers about the upcoming maintenance window, execute the migration smoothly with no errors, and minimize their down-time or even avoid it altogether.

## >> Analyze and Optimize Existing Network and Make it Migration-ready

The discovered data must be analyzed - "is it right?" and "is it needed?" - and cleansed of all clutter before migration commences.

## >> Migration Design

Once you have a precise picture of what's in your network and exactly what should be migrated, we move to the next step: technical migration design. During this step Atrinet will model the mapping, define logic and rules of how to transform the configuration from existing to new network elements or technology while considering your operational constraints and business policies. Atrinet's Migration Specialist Team uses NetACE's visualized DevOps-enabled design environment to accomplish this task. Our open collaborative design environment dramatically simplifies the whole process, reduces delivery time and eliminates the risk of making mistakes (these can be easily fixed and validated on the fly). Atrinet encourages CSPs and SIs Engineering staff to join us in this extremely interesting task.

## >> Deploy and Zero Touch Provision (ZTP) Of New Equipment

If new network elements are still not ready for the migration, NetACE®, using its model-driven Zero Touch Provisioning & Automation (ZTP) module, can automate the roll-out of this new equipment and set the initial configuration.

## >> Migration Execution (Move to...)

Once the new element or platform has been discovered in NetACE® and is ready for the migration, you can start executing the automated configuration migration sequence according to the migration models. Your customers rely on you to make this procedure as painless and as least disruptive as possible. To ensure this, we strongly recommend the "make-before-break" mode of operation, i.e. first configure the new equipment and services and validate their operational readiness and serviceability, then disconnect the old.

## >> Validate Successful Migration

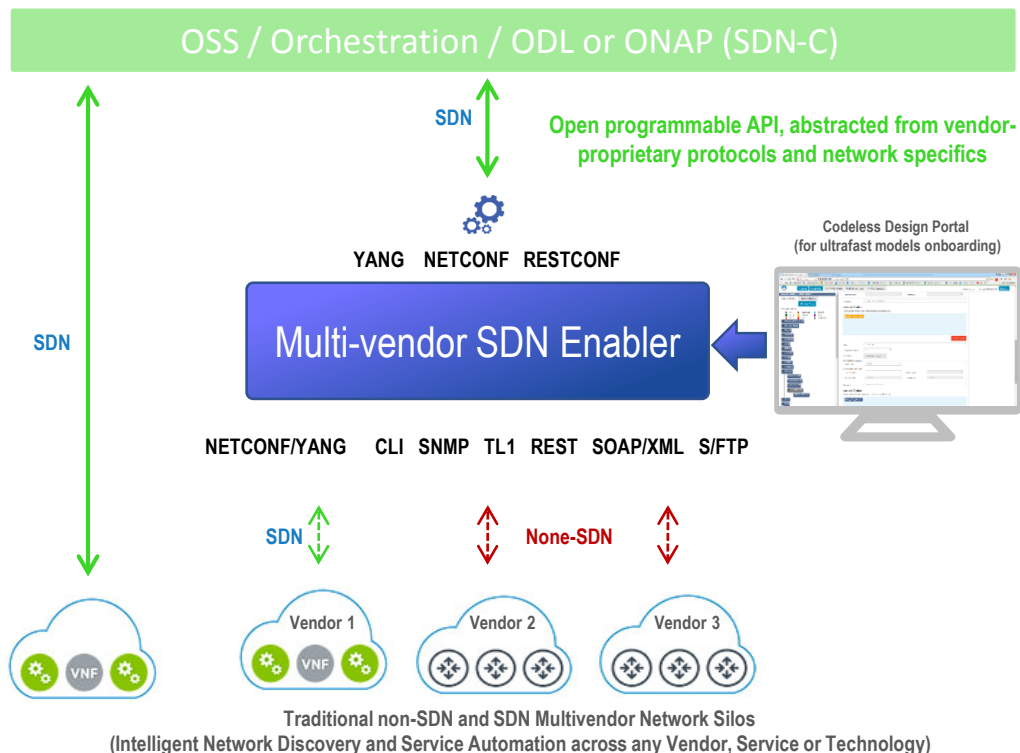
NetACE® automatically validates and reports on the transition state per service/device. If it encounters a problem while applying configuration changes to the network, in addition to rolling back, NetACE® will generate an alert that refers to the particular issue or command in dispute. This can be immediately validated and fixed in the system runtime visualized DevOps/NetOps design environment by simply updating the relevant model and trying again. Once the migration process is successfully completed, old equipment can be decommissioned.

## Make Your Legacy Network Open And Programmable with NetACE SDN-izer®

Communications providers constantly adapt their networks to be more flexible and responsive to their organizations' and customers' needs. One of the key goals is making their existing, closed network infrastructure multi-vendor, agile and automated. Specifically for this purpose Atrinet, based on the NetACE® framework, has developed a multi-vendor SDN enabler called the NetACE SDN-izer®. This model-driven shim layer ensures seamless network abstraction, programmability and automation across any legacy and next generation multi-vendor networks of any size and scale through its open northbound YANG, NETCONF, RESTCONF programmable interfaces. The NetACE SDN-izer® is rapidly (in days/weeks) customizable for any standard and non-standard network elements and service functionality using the DevOps-enabled self-service design environment. This is a real game-changer for CSPs' Operations and Engineering Teams.

### >> Be Multi-vendor SDN (end-to-end)

- Make legacy, closed, network devices open SDN-speakers
- Extend existing open sources frameworks (e.g. ODL, ONOS, ONAP) to legacy domains.
- Expose open programmable YANG, NETCONF, RESTCONF API for any non-standard network equipment (incl. CLI, TL1, SOAP, etc).
- Reduce number of APIs to integrate with, reduce integration time and efforts.
- Accelerate new vendors and services onboarding using self-service DevOps-enabled visualized design environment.
- Abstract your Controller or OSS from network complexity by providing a seamless resources abstraction layer to enable seamless logical representation of resources and networks via open API.





## Why Atrinet?

- Atrinet is a reliable independent software vendor with a proven track record of delivering complex use cases and projects, working closely for many years with Operations and Engineering Teams of CSPs.
- Atrinet brings to your network migration a perfect combination of best-of-breed technology and a team of highly skilled network migration specialists with extensive experience in legacy and emerging network technologies.
- We're network experts! A highly motivated unique group of top of their fields R&D, DevOps and network engineers with an in-depth knowledge in OSS, NMS/EMS, ODL (OpenDaylight) and complex multi-technology, multi-vendor network environments.
- Undisputable flexibility and agility of our model-driven NetACE® framework and the speed of onboarding new devices and services (days/week) using a visualized DevOps-enabled environment, allows us to deliver complex network migration projects in the most reliable, efficient and fastest way.
- Expandable NetACE® multi-vendor libraries include more than 40 supported equipment vendors, a huge advantage and head-start.
- NetACE® simplifies the integration with a large, multi-vendor and multi-technology network by reducing the number of proprietary management interfaces to just one standard SDN interface and uniform API for seamless network service automation, near real-time inventory and insights data.
- Atrinet has a profound knowledge and experience in interfacing with non-standard proprietary management interfaces and equipment delivering multi-vendor legacy network discovery, abstraction and automation use cases.
- Atrinet offers an innovative cost-beneficial business model to support your company growth.

## For More Information

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## About Atrinet

Atrinet ([www.atrinet.com](http://www.atrinet.com)) is a software vendor and services company specializing in Network Migrations and Multi-vendor SDN enablement. Atrinet's comprehensive suite of products and services make legacy and emerging network technologies seamlessly interact and evolve enabling CSPs to transform their networks to meet today's demands using [NetACE®](#), a unique model-driven, DevOps-enabled, network discovery and automation framework.

Atrinet is built on many years of experience and an in-depth knowledge of legacy and emerging technologies. It has delivered complex use cases and projects including network discovery and understanding, automation, network rollouts and more, working side-by-side with CSPs' Operations and Engineering teams, vendors and system integrators.