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Amdocs Network Cloud Service Orchestrator

The Network Functions Virtualization (NFV) Promise

Service providers are faced with high customer expectations, accelerating capacity demands and increasing competition. They need to offer their customers competitive new services that can be quickly deployed and modified.

Proprietary appliances from numerous vendors create barriers to new service introduction, drive up cost and are difficult to maintain – making service providers less effective in the competitive landscape. To counter these challenges, service providers are driving a shift to NFV and dynamic network clouds to rapidly introduce new services, respond quickly to customer needs and improve operational efficiency.

Entering the second phase

Since its inception, NFV has taken initial steps in the telecom domain. Many vendors have virtualized their technology stacks on selected cloud management systems (CMS), moving away from an expensive appliance model. This step however, is only the first one in a long journey to cloud-enable a rich assortment of virtual service functions that span distributed data centers, which can then be designed by users from a rich service catalog and elastically provisioned as needed against service level agreement (SLA) policies.



Enabling such an end state is not trivial and requires a strategic technology and operational transformation. Service providers need to first select the right next generation cloud service fulfillment architecture including service catalog, service modeling, NFV orchestration, active and assignable inventory, CMS and underlying software-defined network controllers (SDN-c). Secondly, a skill set and mind set evolution is needed, specifically regarding agile service rollout, which encompasses purchasing methodologies, service definition, delivery and end of life. The methodologies required are similar in nature to over-the-top (OTT) practices and go hand-in-hand with the reshaping of operational skills towards cloud technologies.

This data sheet outlines the technical and service programs Amdocs has established to help service providers step through this transition and to stay ahead of the competition through business agility and operational cost performance.

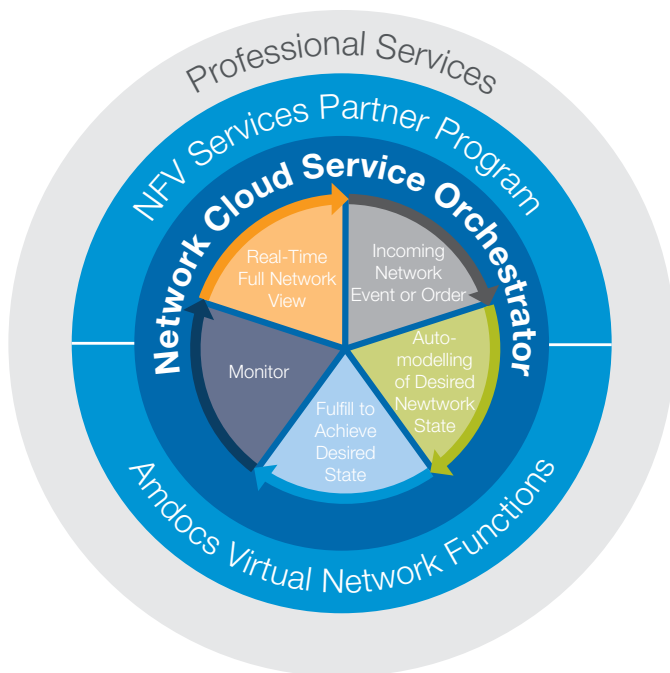


The Amdocs NFV Offering

Amdocs offerings support service providers in their journey from physical networks to a network-cloud end state, enabling them to drive new services, respond quickly to customer needs and materially reduce OPEX and CAPEX. The Amdocs NFV offering includes:

- NFV operations solutions, starting with the Amdocs Network Cloud Service Orchestrator
- Virtual network functions
- NFV Services Partner Program
- A wide spectrum of professional services

This data sheet focuses on the core of the Amdocs NFV offering – the Network Cloud Service Orchestrator and on the NFV Services Partner Program.



Amdocs Network Cloud Service Orchestrator: Realizing the NFV Promise

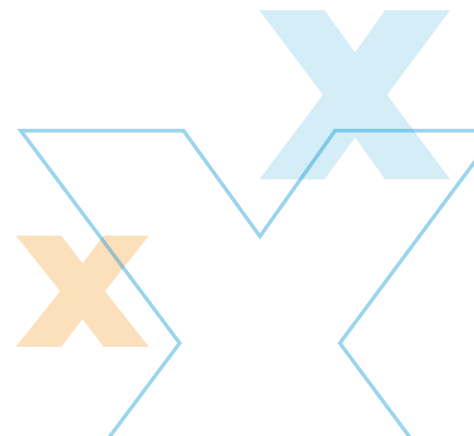
Scaling the NFV promise requires an operations solution that enables service providers to rapidly define new service models and fulfill them instantly upon demand. Key requirements of such a solution include:

- Dynamic service design and fulfillment
- Automatic management of tens of thousands of instances in real time, over a distributed and multi-vendor infrastructure
- Support for services spanning virtual and physical resources
- Integration with business support systems (BSS) and operational support systems (OSS)
- Integrated policies and analytics for optimal service performance

Amdocs Network Cloud Service Orchestrator is an open, catalog-driven solution for service providers transitioning from physical networks to dynamic network-clouds. Amdocs Network Cloud Service Orchestrator continuously designs, fulfills and assures network services, from any virtual network functions (VNF) vendor, over all mainstream CMS and SDN-c.

Key elements of Amdocs Network Cloud Service Orchestrator:

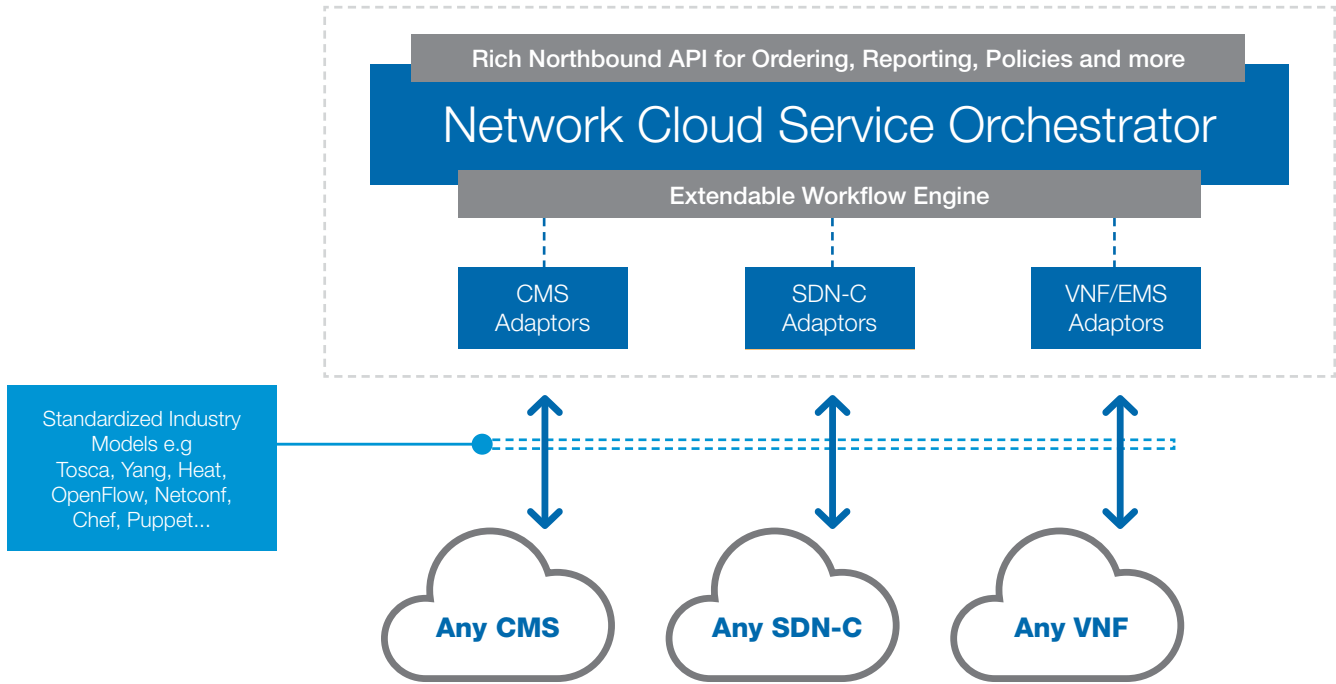
| Open Solution | Catalog-Driven | Dynamic, Continuous Fulfillment |
|---|---|---|
| <ul style="list-style-type: none"> • Manages any VNF, from any vendor • Supports mainstream CMS, SDN-c and hardware • An open ecosystem of VNF and NFVI partners | <ul style="list-style-type: none"> • Master catalog includes network resources • Reusable building blocks for fast new service definition • Linking the network and business | <ul style="list-style-type: none"> • Continuous comparison of desired state, actual state, and new requirements • Continuous re-fulfillment to provide services at SLA • Fulfillment across physical and virtual functions |
| Best-of-breed networks, no vendor lock-in | Rapidly introduce new user-defined services | Agile, lean operations; virtual & physical |



Why is the Amdocs Network Cloud Service Orchestrator Unique?

An open solution orchestrating any VNF over any mainstream NFV infrastructure

One of the key drivers for NFV is the ability to build and operate best-of-breed network services and avoid vendor lock-in. Amdocs Network Cloud Service Orchestrator is an open, vendor-agnostic platform, capable of managing any VNF, over all mainstream CMS, SDN and commercial off-the-shelf (COTS) computing hardware, making it easy to switch vendors and make decisions without the risk of vendor lock-in.

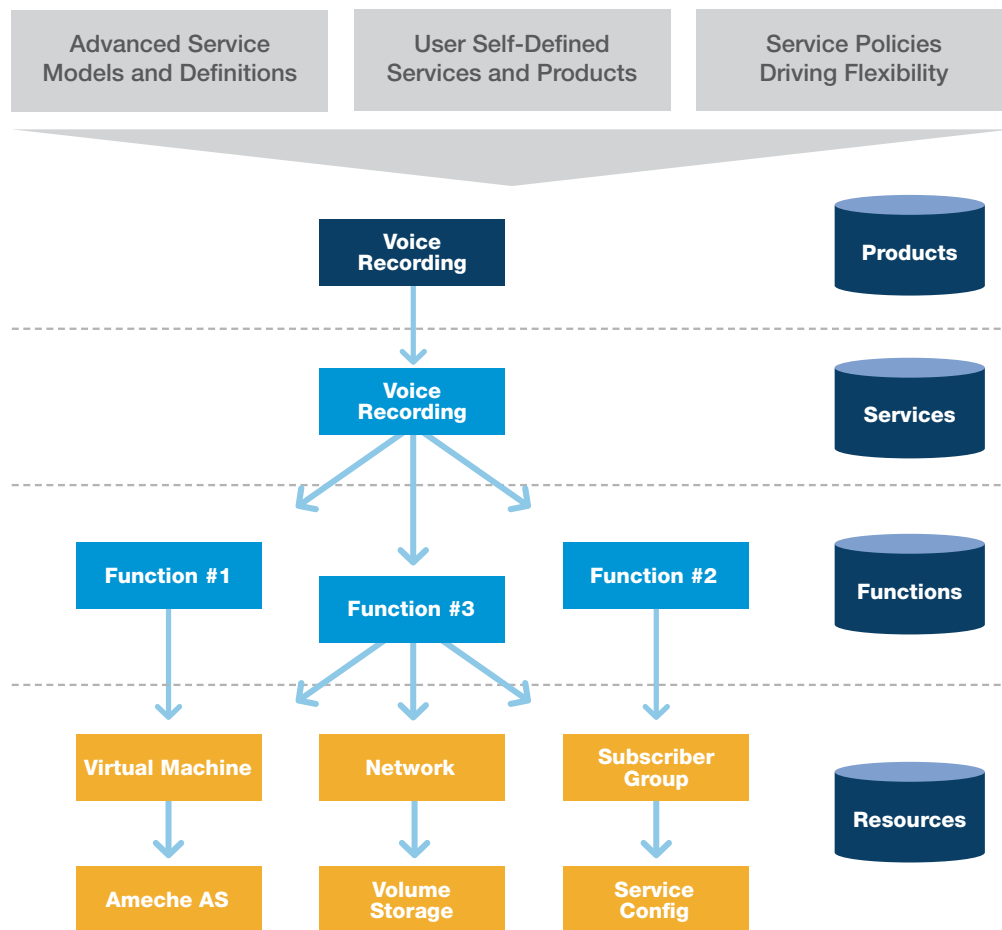


A catalog-driven approach for rapid service definition and fulfillment

Amdocs has extended its Master Enterprise Catalog to create a single point of reference for network resources (virtual and physical), as well as service and product parameter models.

The models describe virtual, hybrid and physical services complete with their policies, processes and attributes, as well as their compute, storage and networking needs. For the first time, business users have an actionable modeling tool that enables immediate and automated fulfillment of the products and offerings they define.

Modelling of VNFs, network resources in the catalog, and linking them to services and products, turns them into reusable network resource building blocks. These building blocks are visible and usable on the business level, making it fast and easy to onboard new VNFs from new vendors, aligning the network with the business needs, and enabling business-driven orchestration.



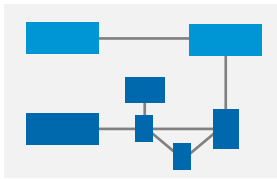
Intelligent, continuous fulfillment for agile and lean network operations

Amdocs Sensei is an innovative technology for intelligent real-time service design and execution. It revolutionizes the current service operational model of separate service fulfillment and assurance, by converging the two into a single, cyclic process.

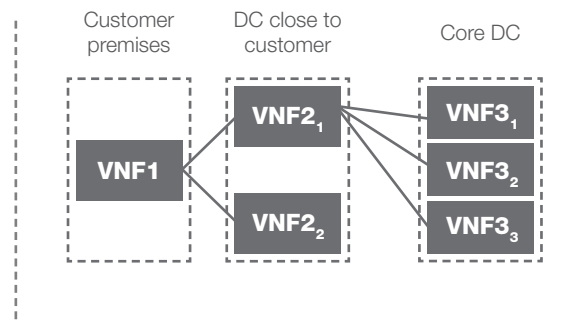
The Sensei transforms the abstract service model stored in the catalog into a dynamic service design that is based on service policies, data center status, network status, customer orders and SLA considerations.

In order to ensure services are meeting SLAs and operating in line with requirements, Sensei continuously gathers real-time information on network service and customer key performance indicators (KPIs). It evaluates whether services are in line with SLAs and when needed Sensei automatically redesigns services in line with current network conditions and customer requirements and fulfills the difference. This continuous fulfillment process closes the loop between service fulfillments and assurance, reducing time to resolution and minimizing the dependency on error prone manual processes.

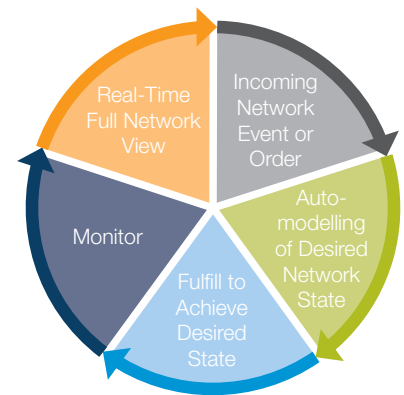
Service Model



Dynamic Service Design



Continuous Fulfillment



Amdocs NFV Services Partner Program

Realizing the vision of an agile network cloud will require a host of technologies and best-of-breed products and services that openly interact, seamlessly integrate, and play in harmony.

In order to drive rapid NFV/SDN evolution and help realize the multi-vendor, agile, network-cloud vision, Amdocs has established the NFV Services Partner Program and has set up an open NFV lab environment.

The Amdocs NFV Services Partner Program is focused on pre-integrating a rich set of VNFs and network functions virtualization infrastructure (NFVI) elements to simplify the complexity of service orchestration, improve service time to market and address end-to-end SLA considerations.

Current use cases include:

- Virtual enterprise customer premise equipment (vCPE)
- Virtual IMS Core
- Virtual Evolved Packet Core (vEPC)

Why choose Amdocs as your NFV partner?

Amdocs' objective is to be the partner of choice for service providers, helping them move from the physical driven network world to a virtualized network end-state, which will enable service providers to drive new services, respond quickly to customer needs and improve operational efficiency.

As a communications IT software vendor with vast experience and assets in communications IT clouds, as well as network control and mission critical systems, Amdocs is best positioned to help service providers through this transformation.

- Amdocs has the leading communications product catalog and service fulfillment solutions
- Amdocs is a communications IT software company with a pedigree of cloud deployments and operations
- Amdocs has vast experience in deploying carrier grade mission critical systems





ABOUT AMDOCS

Amdocs is the market leader in customer experience software solutions and services for the world's largest communications, entertainment and media service providers. For more than 30 years, Amdocs solutions, which include BSS, OSS, network control, optimization and network functions virtualization, coupled with professional and managed services, have accelerated business value for its customers by simplifying business complexity, reducing costs and delivering a world-class customer experience.

The Amdocs portfolio enables service providers to capture the world of digital immediacy by operating across digital dimensions to engage customers with personalized, omni-channel experiences; creating a diversified business to capture new revenue streams; becoming data empowered to make business and operational decisions based on insight-based and predictive analytics; and achieving service agility to accelerate the fast rollout of new technologies and hybrid network services.

Amdocs and its more than 24,000 employees serve customers in over 90 countries. Listed on the NASDAQ Global Select Market, Amdocs had revenue of \$3.6 billion in fiscal 2015.

Amdocs: Embrace Challenge, Experience Success.

For more information, visit Amdocs at www.amdocs.com.

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