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Network Services

Accenture Next Generation Enterprise Services: Helping CSPs Extract Optimum Value from Digital Network Transformation
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The growth and demand for digital services is creating tremendous disruption for communications services providers (CSPs), as their customers, particularly the enterprise segment, demand ever-increasing service velocity, quality and differentiation. Beyond adapting to ever more complex customer requirements, CSPs are facing additional business challenges, including an explosion in traffic, OPEX growth, revenue and margin pressure, the advent of over-the-top digital giants as well as cloud providers as competitors, and new regulatory laws promoting additional competition. These issues are existential in nature, and are increasingly impacting not just operators’ profitability, but their very sustainability.

To address the requirements of the new digital customer in a cost-effective and efficient manner, while reducing time to revenue, high-performing CSPs are moving away from reliance on purpose-built hardware for network functions. They are instead creating a new digital network of the future—underpinned by the cloud, software-defined network (SDN) tools, and network functional virtualization (NFV)—that will be a flexible business enabler, providing an opportunity for CSPs to win against the digital giants and to be a disrupter, rather than the disrupted.

In support of this journey, Accenture has developed the Next Generation Enterprise Services offering, an end-to-end suite of services that offers comprehensive support for the demands faced by CSPs who seek to become platform-based Interactive Digital Service Providers. To address the challenges CSPs face in meeting the needs of their enterprise customers, Accenture is launching this services suite to help CSPs design, develop, deploy, operationalize, migrate to and jointly take to market next-generation enterprise telco service portfolios.

Next Generation Enterprise Services includes three major components:

- **Accenture Digital Virtual Network Platform**, which establishes a comprehensive framework for the virtual network of the future.

- **Accenture Intelligent Migration Suite**, which establishes a clear path for transition from legacy, hardware-based approaches.

- **Accenture Digital Network Transformation Services**, which offers broad-based consulting, engineering, deployment, migration, testing and operation services to optimize CSPs' digital network opportunities.

Together, these offerings provide CSPs with comprehensive tools and support for the Digital Network Transformation that will help them drive closer alignment with the needs of their enterprise customers.
Accenture Digital Virtual Network Platform plays a key role in enabling a CSPs' evolution toward the Integrated Digital Service Provider business model. It helps CSPs to establish comprehensive network functionality using software running on a cloud-based, virtualized infrastructure—all of which is orchestrated by software across different network layers and technologies.

Building on virtual network functions (VNFs), the Digital Virtual Network Platform uses an NFV-based software-defined telco data center approach, providing a comprehensive architectural framework for CSPs' evolution toward the Integrated Digital Service Provider business model.

Accenture's integration approach follows the industry standard open framework for implementation of NFV-I, MANO and other ETSI layers, which makes it possible to replace and augment the VNF functions from any NEP equipment in a relatively straightforward manner. Advantages of this approach include:

- **Simplicity**: Accenture's approach is already integrated with CSPs’ ecosystem, due to Accenture’s experiences with enterprise customers and broad knowledge of telco processes, technology and organization.

- **Modularity**: The approach enables specific functions only when needed, with easy plug-in of external solutions and ability to compose best-in-class components.

- **Comprehensive vendor ecosystem**: Accenture's breadth of technology partners is fully leveraged to develop ADVNP as an ecosystem designed to offer a full out of the box solution while also providing a pick and mix approach, depending on the CSP’s needs. More than 20 partners are already on-boarded into the platform, and new ones are being continuously evaluated and added.

In keeping with this integration approach, which is highly modular and “plug and play,” Accenture Digital Virtual Network Platform takes advantage of both off-the-shelf commercial software and open source software for reduced cost, easy customization and rapid deployment, so that with a contained incremental effort, additional VNFs can be rapidly virtualized.

- **Openness and standard approaches**: Open to various products integration, with no vendor “lock-in,” and with support to various standards to increase interoperability.

- **Flexibility and readiness to transfer**: An open-source platform core guarantees ease of customization and ready evolution in the current challenging context, maximizing knowledge sharing and reuse of internal capabilities for development and configuration.
Figure 1: Accenture Digital Virtual Network Platform (ADVNP) Target Architecture

1. VNF Onboarding
   - EMS
   - vVPN
   - vCPE
   - Telco #1 VNS
   - Telco #2 VNS

2. Software Defined Infrastructure
   - Virtual Resources
     - v-Computing
     - v-Storage
     - v-Network
   - Virtualization Layer
   - Physical Resources
     - Computing
     - Storage
     - Network

3. Process & OSS 2.0
   Full-service fulfillment, management, delivery/activation in the new ecosystem will be handled within this layer.
   - Service Orchestration
   - VNF Manager
   - Virtual Infrastructure Manager

4. Portal & Catalogue
   - ADVNP Portal
   - Service / Product Catalogue

Legacy Functions / Platforms

Legacy OSS / BSS
As shown in Figure 1, Accenture Digital Virtual Network Platform architecture consists of four main layers:

**Layer 1: Portal & Catalogue**
A user-friendly, web-scale portal provides an overall improvement in customer experience. It enables user self-service to improve and simplify the ordering process for a virtual suite of digital products and services that are accessible through a centralized catalogue. In contrast with the past, users can select the functionality they require, creating their own specific services, bandwidth and configuration, and enabling services to be set up and running in a matter of minutes. This portal additionally provides the capability to manage billing, service lifecycle management, flexible change management and a full GUI/visual depiction of the state of the service.

**Layer 2: Software-Defined Infrastructure**
Using a virtualization layer to interface with existing physical resources for computing, storage and network activity, this portion of the architecture establishes virtual Resources for v-Computing, v-Storage and v-Network. Applications sit on top of this next-generation infrastructure, and provide common, standardized, collaborative resources for computing, storage and network functions.

**Layer 3: Process & OSS 2.0**
Infrastructure control is provided by a management layer, which manages infrastructure and provisioning and provides the opportunity to scale up and down to meet users’ functional requirements, delivering a next-generation OSS platform for management and orchestration. This layer consists of the following modules:

- **A Service Orchestrator**, which oversees the processes and software for network planning, activation and assurance. It allows automation of the lifecycle of services, providing features such as the composition of VNFs to create instances of network and/or end-to-end services distributed on one or more sites (geo-orchestration), and to manage priorities among different strategies for automatic recovery in case of a shortage of resources.

- **A VNF Manager**, which allows automation of the VNF lifecycle, handling features such as the automatic creation of the VM composing the VNF and their interconnection; VNF monitoring; and VNF automatic scaling, with increase or reduction of resources allocated to the VM, based on KPIs, infrastructure and/or applications.

- **A Virtual Infrastructure Manager (VIM)**, which handles the instantiation of VM and virtual networks on physical infrastructure, ensuring the allocation and efficient use of resources by the VM, and the proper capacity management and monitoring of the basic virtualized infrastructure. The VIM is the element that makes it possible to provide the service in multi-tenant mode.
A Legacy OSS/BSS Integration, which has hooks back into the legacy back office systems to support activities related to deployment, service delivery and service assurance. This integration provides the capability to interface with existing systems to manage legacy services and infrastructure.

This architecture is fully aligned with the Accenture OSS 2.0 blueprint, which includes a Virtual Function Catalogue and a Service Inventory to support the overall Virtual Network Function Fulfilment and Assurance framework, with specific focus on the migration from the legacy network towards the SDN/NFV architecture.

Layer 4: VNF Onboarding

The VNF onboarding layer utilizes application programming interfaces (APIs) to bring off-the-shelf or open-source VNFs onto the standard platform, establishing real-time communications services in voice, data, video and other modes—providing all the network functions that run services for enterprise customers.

Accenture supports CSPs throughout their full transformation from legacy to all-IP and SDN-NFV Cloud by providing an end-to-end solution that includes:

- Initial consulting support, including business case justification, data diagnostics, legacy to IP/SDN-NFV product rationalization, future state revenue optimization, organizational development services for the client migrations team, and migration program design.
- Data preparation and migration readiness services, including data reconciliation and cleansing, migration use case development, and specification of commercial-technical migration rules.
- A Network Academy to retrain and re-skill the internal workforce, enabling them to manage the migration process and the future-state Digital Virtual Network.
- End-to-end managed migration execution services (Migrations Factory BPO) covering the full range of legacy to IP / SDN-NFV Cloud migration activities, including migrations PMO, “white glove” commercial migration services and customer migration specialist team staffing.
- A network decommissioning factory to streamline and maximize return during end of lifecycle of legacy network decommissioning.
- Accenture Intelligent Migration Solution, a comprehensive toolset for optimizing legacy to IP / SDN-NFV Cloud migration activities and programs.
To support operators in their transformation journey from legacy to IP / SDN-NFV Cloud, Accenture has developed Accenture Intelligent Migration Solution, a pre-integrated set of tools and processes for rapidly scaling product, customer, network and IT migrations, which enables proactive acceleration of IP migration and transformation programs.

Accenture Intelligent Migration Solution brings together the powerful data analytics, financial analysis, migration-specific processes and workflow automation required to effectively plan and execute migrations from legacy to IP / SDN-NFV Cloud.

Accenture Intelligent Migration Solution's tools and processes manage the entire network transformation program—from initial data reconciliation, product mapping, migration use case development, financial scenario planning, migration execution and network decommissioning.

Accenture Intelligent Migration Solution provides seven fundamental building blocks:

- **Data Diagnostic**: Assesses availability and accuracy of customer, segment, circuit, geography and billing data, to determine migration readiness.

- **Data Correlation and Cleansing**: Collects, formats, cleanses and matches records; prioritizes and validates data for migration.

- **Product Mapping & Revenue Impact Assessment**: Rationalizes legacy product catalogue and maps IP / SDN-NFV Cloud services and product bundles to a profitable future-state service catalogue.

- **Financial ROI Scenario Planning**: Utilizes data analytics to develop multi-year, prioritized migration business cases and sequenced migration programs.

- **Migration Use Case and Rules Development**: Provides the detailed business and technical rules for automating circuit / TN migration grouping and sequencing; defines the specific steps needed to effectively execute each legacy-to-future-state migration scenario.

- **Migration Program Management**: Executes and tracks migration programs using business rules and workflow templates; resolves risks/issues; and measures value realization against business case. Provides user-friendly dashboards to report on progress.

- **Decommission Legacy Networks and Equipment**: Realizes cost savings across equipment, copper salvage, network, operations and real estate.

Accenture Intelligent Migration Solution enables operators to accelerate customer migrations to help optimize revenue retention; provide line of sight to project costs to ensure promised reductions; improve business flexibility; and improve the resulting product mix and overall customer satisfaction.
Enabling CSPs to realize full benefit from the Digital Network Transformation process is a comprehensive suite of consulting services, Accenture Digital Network Transformation Services.

Based on Accenture assets, Accenture Digital Network Transformation Services represents a comprehensive offering to address CSPs’ needs in their transformation to Integrated Digital Service Providers.

Accenture Digital Network Transformation Services can guide CSPs in a unique and comprehensive way in their network virtualization Journey, addressing the holistic set of four transformation streams:

- Consulting Services
  - Operating Model, to handle the increased complexity and flexibility that comes with SDN/NFV services (governance policies, processes and workflows, and tool enablement)
  - Financial Model, to account for demand variation, thereby incorporating financial modeling, governance design, product pricing and recovery, and business case communications to support SDN/NFV program success.

- Infrastructure Services, to deliver software development lifecycle services required to design, build test and roll out new software defined infrastructure and the systems required to support it moving forward.

- Engineering, Deployment, Testing and Operations Services
  - Engineering, Deployment and Testing Services, to onboard new virtual network services integrated with the network infrastructure
  - Operation Services, to effectively and efficiently run infrastructure and virtual network services.
• Legacy Migration Services

- Migration Strategy, to support business case creation/justification, data diagnostics, legacy to IP/SDN-NFV product rationalization, future state revenue optimization, organizational development services for the client migrations team, and migration program design.

- Data preparation and Migration readiness Services, to include data reconciliation and cleansing, migration use case development, and specification of commercial-technical migration rules.

- Network Academy Services, to retrain and re-skill the internal workforce, enabling them to manage the migration process and the future-state Digital Virtual Network.

- Managed Migration Execution Services, to cover the full range of legacy to IP / SDN-NFV Cloud migration activities, including migrations PMO, “white glove” commercial migration services and customer migration specialist team staffing.

- Network Decommissioning Factory, to streamline and maximize return during end of lifecycle of legacy network decommissioning.

These broad based consulting services will enable operators to accelerate the evolution to Next Generation Enterprise Services through a holistic approach to manage transformation across people, process and technology.

Supporting an industrialized delivery of solutions in these areas is the Accenture Digital Virtual Network Acceleration Center, an open innovation, technology-agnostic center leveraging the global Cloud Innovation Center of Excellence of Accenture. The Center represents a live, digital virtual network services ecosystem in action, leveraging best-of-breed and best-of-value solutions in a pre-integrated manner to accelerate multivendor solutions to address each client's requirements. The partnership embodied by the Center represents a new value proposition to jointly ideate and deliver innovation for the market and for the final client.
Evolving from a traditional service provider to a platform-based Interactive Digital Service Provider is a complex task. You want to minimize cost, minimize disruption, and get to the value... fast. But it’s also clear that what got you to where you are now, won’t get you to where you want to go. Accenture has the industry expertise, digital insight, technology experience, ecosystem partners and end-to-end solutions to help build your next-generation network. We can help you make the move from a traditional network to a digital network, along multiple dimensions:

- **From operating a hardware-based network**... to operating a digital network platform using software.

- **From working with a few hard-wired vendors**... to creating an open environment that can be rapidly extended into new industries.

- **From confronting regional limitations**... to running a global network.

- **From being constrained by corporate boundaries**... to providing a seamless connection to third-party cloud ecosystems.

- **From employing a workforce that “maintains”**... to empowering a workforce that innovates.

- **From being pigeonholed as a “dumb pipe”**... to inventing the intelligent, self-learning digital platform that makes you the best choice for your customers in the future.
For more information

Contact
Amol Phadke, amol.phadke@accenture.com
Matthew T. Anderson, matthew.t.anderson@accenture.com

About Accenture

Accenture is a global management consulting, technology services and outsourcing company, with more than 358,000 people serving clients in more than 120 countries. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world's most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. The company generated net revenues of US$31.0 billion for the fiscal year ended Aug. 31, 2015. Its home page is www.accenture.com.