



Building a
Digital Marketplace
of Commercially Ready Services

Getting Started

Many service providers have focused their virtualization efforts initially on the high growth B2B market as they strive to move up the value chain. Early service examples include virtual CPE, security and SD-WAN with the goal of delivering a whole range of value-added services on top, bundling VNF and cloud/IT services into attractive market offerings and launching new services every few months. A similar focus is also happening in the consumer market as costly premise-based devices are being replaced by new digital experiences delivered from the cloud.

What is common to both these domains is the need to provide a transformed service experience that matches customers' new buying habits. Portal driven services are a must in today's market. Businesses and consumers demand more control over their service experience by browsing, purchasing, monitoring, problem solving, modifying or terminating services through a self-service portal. Digital marketplace concepts have become more common as a result, particularly with regard to cloud and emerging virtualized services.

The question, however, is how to populate a digital marketplace with new services and sustain it over time?

When building a digital marketplace, service providers can utilize a three stage approach in order to highly automate the process and ensure the marketplace is populated with a continuous flow of commercially ready services.

Stage 1: Service design and creation.

Stage 2: Commercial readiness with no disruption to legacy BSS.

Stage 3: Stakeholder collaboration to analyze, optimize and enhance services.



Stage 1: Service Design and Creation

VNF onboarding is the first step in service creation. It has been problematic for many service providers due to a lack of standards and a need to work with many more partner VNFs than before. VNF onboarding requires a VNF Descriptor (VNFD) that describes everything needed for that VNF to operate in a real-time orchestration environment across the full lifecycle.

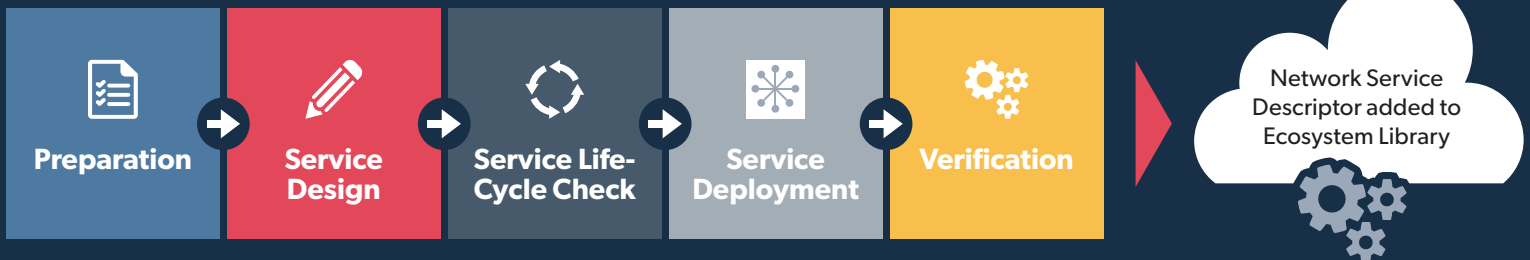
However, VNF onboarding represents only 10 to 15 percent of the actual effort to commercialize new virtual services. The other 85 to 90 percent relates to service onboarding and commercialization.

A VNF is not a service. Services are composed of several or even dozens of components from multiple VNFs and will likely have physical components also (such as physical CPE). Once the components of the service are defined, service KPIs need to be established.

The next step, service design and modeling, is the most crucial and is responsible for reducing service creation times from months to weeks. Services are designed and modeled using agile and DevOps techniques which simulate how a service operates and validates all the assumptions and interdependencies between the components. Based on any changes needed, tools are used for multidepartment team collaboration. The result is a comprehensive Network Service Descriptor (NSD) that provides all the information that is needed to run the service. This design process needs to be separated from the execution environment to create an NSD that is agnostic of any orchestration platform.

With the NSD, the service can now be deployed in the labs with a network and service orchestration environment. All the lifecycle checks will be performed and the service will go through stringent validation. Key to this process is the feedback

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loop that is put in place between the design and execution environments to ensure continuous updates are made to the NSD across this cycle of events, which will continue even after the service is out of the labs and commercially deployed. In DevOps terms, we call this continuous design, continuous integration and continuous testing.

This process results in a software asset that can be populated in a library that is reusable in any service. It will not need to be redesigned in the future. It can be reused as part of other services or cloned and modified to create new services. This library approach shrinks the time it takes to roll out and modify new services. It goes beyond the first step of onboarding a collection of VNFs and produces a library of fully commercial services that can go to market and continue to evolve.

Don't Overlook License Management

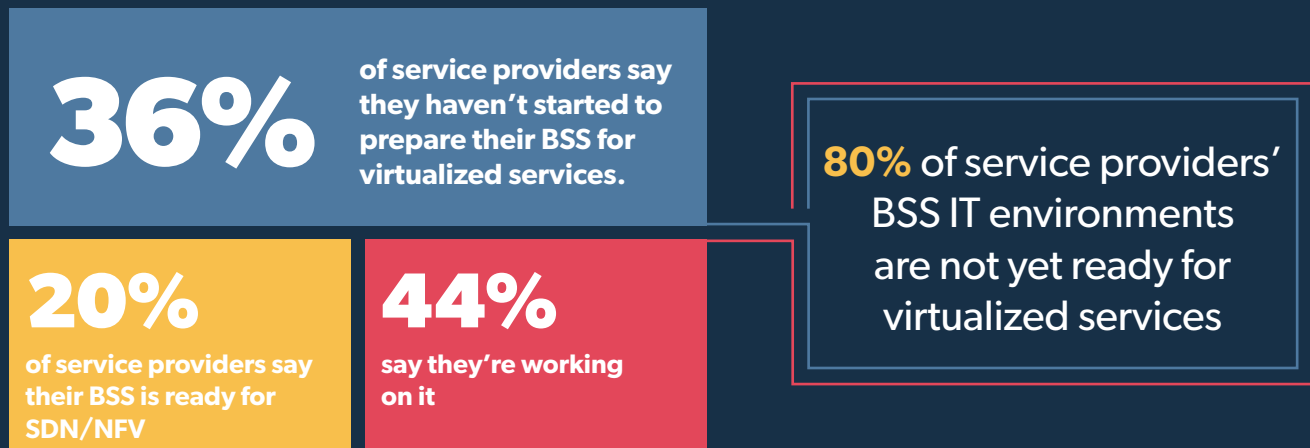
As services become more complex in terms of the components and partners involved, license management undergoes a substantial change. License management is very different in the virtualized world because it introduces new factors that were not at issue in the physical world. For example, pay-as-you-use pricing models are now common. In the physical world, licenses were booked a year in advance, but in the virtual world, autoscaling and descaling has to be supported which forces license management to accommodate dynamic scale. And because licensing becomes more dynamic, automation also must help ensure that no licenses expire unintentionally and have a negative impact on services.



Stage 2: Commercial Readiness

Once the service has been created, the focus changes to making it fully commercial. BSS requirements related to billing, product catalogs, charging and subscriber management may not be readily supported by the legacy systems in place.

Netcracker's recent survey conducted with *European Communications* of 60 service providers worldwide found that 80 percent of service providers have not yet prepared their BSS for virtualized services. While 44 percent say they are working on it, with some large BSS transformations underway, the timing of these initiatives should not hold up virtualization service introduction plans. An alternative approach uses BSS microservices to fill the gaps that are needed for SDN/NFV and leaves the legacy BSS in place.



Source: 2017 Global European Communications Survey

Microservices address the need for speed in virtualized service launches, yet they continue to honor the role that legacy BSS infrastructure plays in shepherding millions of customer records and billions in revenue. When deploying BSS microservices, it is advantageous to have access to a library of multi vendor, plug-and-play elements that are pre-integrated with existing BSS.

Pre-integrated microservice components can be deployed in public or private clouds. They should provide ready-access to BSS functions that need to meet the specific requirements of SDN/NFV like a unified product catalog, self-service portals,

subscription management, partner management and real-time charging. Synchronization with the legacy environment is done through interface adaptors. When the service provider is ready for BSS transformation, it can simply expand with more microservice plugins.

In addition, service providers can offer these BSS microservices 'as a service' to their large enterprise customers or smaller service providers.

Legacy BSS

CRM	Self-Service Portal	Batch Rating	Charging
Catalog	Partner Management	Billing	

Fill Gaps



Micro-Service Business Enablement Apps

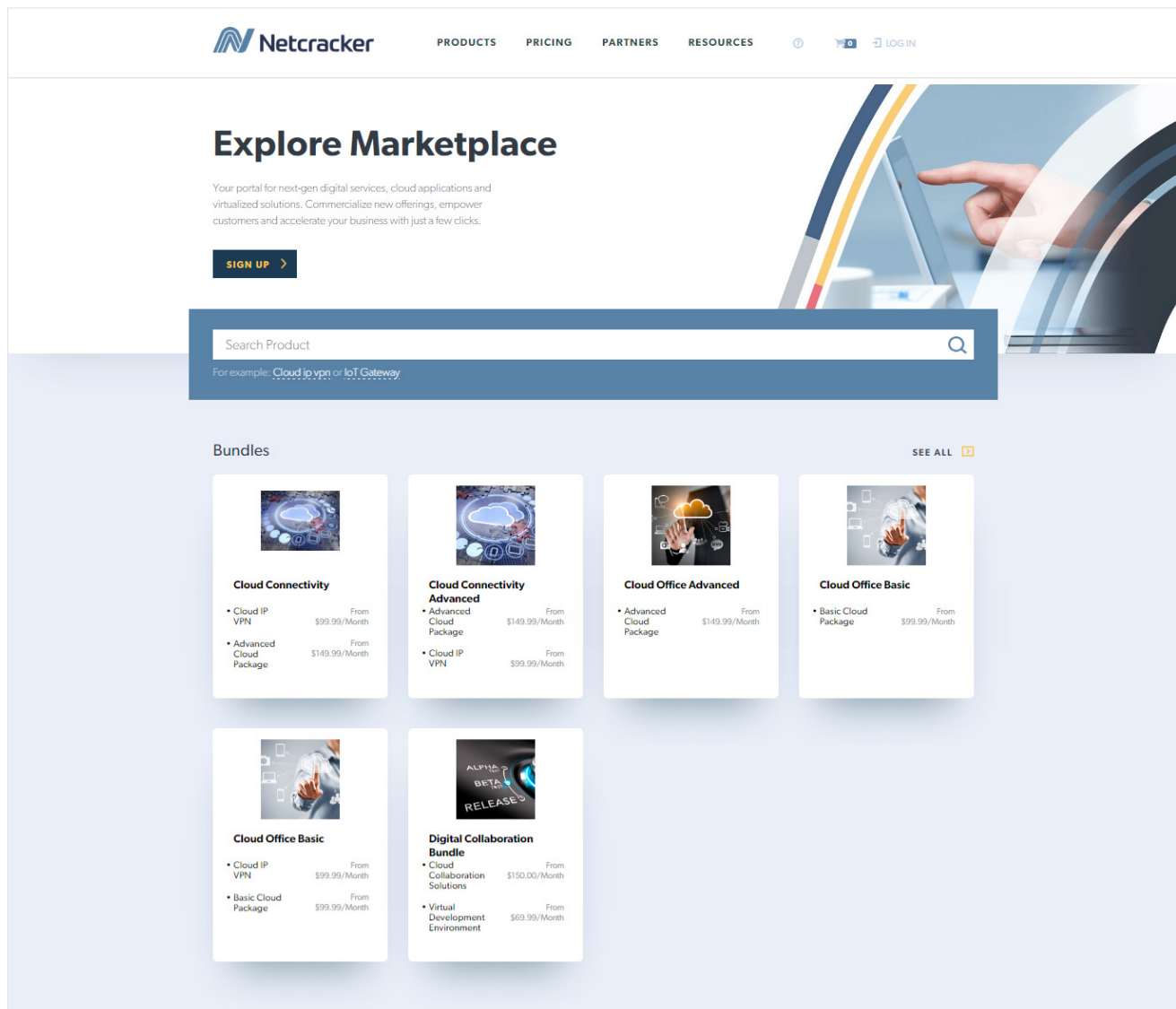
Populating the Storefront

With VNFs onboarded, services created and the right BSS functions in place for SDN/NFV services, it is time to populate your digital marketplace storefront. What feeds the storefront is a unified product catalog where everything comes together – cloud services, VNF services, promotions and pricing, to name a few. Everything is defined in a unified catalog. This catalog can be populated and updated with services and offerings and can enable a catalog-driven storefront experience.

This experience should also encompass partner management, making it easier to set up, onboard and communicate with partners; enable them access to catalogs; and collaborate across a partner ecosystem.

The storefront can then be provided to customers. It will allow them to manage their digital experience, use on-demand ordering and access account controls and information.

Storefront Example



Stage 3: Stakeholder Collaboration

A strong ecosystem is critical for continuous service innovation. Any ecosystem's strength and longevity may depend on how well collaboration is facilitated across it. Sharing an interactive knowledge base among all parties in an ecosystem is critical. Once services are live, partnerships are too. Collaboration and information sharing is necessary to help partners manage services, fix problems, make enhancements and come up with new services.

Once services are up and running, stakeholders will need specific information regarding the aspects of the service they provide or which impact them. Service providers, through their own customized portal, can analyze which VNFs deliver the best return, which perform best in the network and which are best suited to specific markets.

Partners will want to be able to see their part of any service as well. They will want to measure the uptake of their services, receive feedback from the service provider, and assess their revenue expectation for any period of time. Furthermore, if there is a problem, they want to know. They can also benefit from information to change license structures, for example, in advance of a real-time demand growth curve.



Let Us Help You Prepare Your Digital Marketplace Experience

This three-stage approach is based on Netcracker's own methodology and deep experience in delivering digital marketplace solutions for service providers worldwide. It aims to help solve some of the key challenges service providers face as they dually work to roll out new digital marketplaces and launch a continuous series of new cloud and virtualized services through them.




Our NaaS solution, commercially deployed with many service providers globally, incorporates all these stages with the following key capabilities:

- **Virtualization Development and Operations Center** for agile service creation and design. We have onboarded many partner VNFs into our ecosystem library with reusable software assets that are commercially ready.
- **Business Enablement Applications** to build the digital marketplace with a microservices architecture that does not impact your legacy BSS environment.
- **Hybrid Operations Management** which includes a full stack orchestration capability, with closed-loop control, enabling a smooth transition from physical to virtualized networks
- **Ecosystem 2.0** program that takes the pain away from service providers in dealing with many partners as we can do that for you with agreed SLAs.



For more information about NEC/Netcracker's digital marketplace and related solutions, please contact sales@Netcracker.com.

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