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Tuning the Service Factory for Mobile Broadband

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There's been plenty said in these columns and elsewhere about the idea of the service factory in telecom. But the practical experience of introducing it, combined with the relentless pace of convergence (both technical and commercial), throw up the need for a spring clean of the concept – and its realization. In particular, the pursuit of ubiquitous mobile broadband reveals the true extent of ambition needed from a service factory.

To recap: the Telecom Service Factory is an approach to order and fulfillment architectures that enables service providers to more quickly create new products and services from reusable components, and to efficiently assemble offers and orchestrate the handling of orders

OSS strategists must continue to expand their ambition for a service factory.

across service fulfillment process. So far, so good: rapid service innovation while avoiding the re-tooling of systems and processes that characterize the current mode of operation. It's the sheer volume of what we now need to create for this dynamic and competitive marketplace that throws a monkey wrench into existing processes.

And we know that while traditional telco services can take months to move from an idea to a cross-organizational implementation, content aggregators such as Google can put up a new service within hours or minutes of its definition. They can then adjust its parameters based on response, and tear it down the same day if the offer misses expectations.

Having said that, traditional siloed provisioning does work very well for delivering existing products: one product, one technology, from one company. But for developing and implementing innovative, multi-sourced and multi-technology products, service providers have typically created workflow-based solutions that glue provisioning processes together for a particular product. A new product means a new workflow, with little thought for variability and component re-use. More worryingly, without the service factory's concept of componentized flows, the need to create one long end-to-end flow per product limits offer experimentation and rapid variation, and impedes third parties from innovating their own offerings based on service provider wholesaling capabilities. And that's a requirement that the service factory will increasingly have to support.

Could today's approach to provisioning continue to support new services? Certainly. Can custom-tailored workflows support a plethora of new service offerings in an efficient manner? Doubtful. The interactions and dependencies between service offerings/plans and underlying service capabilities/components would become too overwhelming if managed one at a time.

But it's the inexorable rise, and more importantly the intersection, of three big trends that test the ambition of the service factory: mobility, personalization and content.

Revisiting the Service Factory

Communications service providers are looking to satisfy individual customer demands for ever more complex services and bundles. We are making services more interactive and personalized. The more options we give consumers, and the more options we have in the network to deliver that customer experience, the exponentially more complex service provisioning and operations become.

In wireless, service provisioning is no longer just an entry in a Home Location Register. Fulfillment will increasingly be about assembling service configurations and managing disparate service components that affect one another, which in turn will leverage automation and componentization to allow mass customization of low-volume (but abundant), long-tail services.

Wireless operators enjoy a service-/parameter-based style of provisioning, completely separated from the underlying technology and physicality of the supporting network. Fulfillment in wireline is still largely characterized by circuit facility-based ordering - a necessity for the many networks reliant on TDM and point-to-point connectivity. But wireline broadband bundles and supply chains still presage the complexity and interdependence that wireless will face as more interactive services are added. A customer adding SMS might not impact the voice plan that they were on, or the underlying IT required to make that change. But what about offering mobile video content on an advertising subsidized platform?

A strong rules-based service catalog with provision-able service components is crucial.

Consider the following use case, based on a not-untypical mobile broadband scenario. Walking through the provisioning process will demonstrate how the lines of interaction and managing change can quickly become tied in knots.

Content Delivery

A mobile operator wishes to provide premium mobile content that is intended to increase uptake and ARPU: video on demand, streaming television, gaming, and hosted/cloud based applications (email, collaboration services). The content could be delivered via multiple wireless networks available: 3G, 4G, WiFi hotspots. Services would be offered as best effort and/or premium managed quality. The customer has the ability to assemble custom bundles out of a prescribed catalog and pricing based on consumption of content and/or data usage fees. Catalog offers variables listed below, including optional advertising supported plans to reduce cost of premium content, with "opt-in" features that affect the nature of ads, the number and their discounts for content. Family plans are also offered, with allowances tied to parental controls and self-serve thresholds. Choosing an option would be dependent on underlying services (e.g., no parental control unless the base content delivery service was ordered).

Plan or Features	Platforms Likely Impacted	Illustrative Parameters
Content Plan	• Content management systems • Charging system(s) • Home location register	• Authorization • Plan selection
Ad Subsidy	• Ad manager • Ad profile • Rating/charging system	• Opt in (plan change) • Opt in selections / preferences • Rating changed via plan
Family Plan	• Charging system • Home location register	• Subscriber accounts and users; subscriber identity • Administrator and credentials • User's credentials
Allowance	• Charging/policy system	• Limits (type, amounts)
Parental Content Controls	• Policy system	• Blocked content types • Escalation options (e.g., SMS override)

Implementing this use case on paper is interesting enough. Implementing this use case in the real world, with any real speed would be a massive undertaking with current business processes. The interdependencies between the plans and the underlying capabilities create an enormous number of permutations to be handled with current logic trees.

To walk through those dependencies: the quality of the stream we offer is based on the nature of the network the subscriber is connected to. The bandwidth of that network, the capability of the device in the subscriber's hands, and the congestion on that cell at any time will impact the quality of the delivery of the content and the user experience in consuming that content. What pricing and service levels can you offer, and how do you ensure that quality of service dynamically (as the network changes and as customer preferences change—as they may move from best effort to high quality access)?

Now add additional parameters to the equation. The rating plan will be impacted by advertising choices, and the advertising choices will be impacted by bandwidth availability, which may be dictated by device choices.... AND this must all be created together and have the ability to be changed without breaking the constraints of any of the parameters. Every individual subscriber plan created cannot translate into a new service configuration for the service provider. Every new idea for a service offering becomes a thousand workflows in the hands of the customer. Islands of configuration abound. Or worse yet, the new offer is abandoned over fears that it would take too long and too much effort to implement.

Tuning the Service Factory

A strong rules-based service catalog, tied to a strong provisioning control system, can ensure (via dependency rules) that the parameters selected would work across all permutations of the plan. A service "tree" approach that defines simple services can be recombined into complex services and changed simply. And the use of business rules to automatically select the most appropriate solution from the catalog, and direct

Mobility, personalization, and content test the ambition of the service factory.

resource provisioning and optimal (re-)use of physical network resources.

This is the new, necessary update to the ambition for the service factory in 2011: addressing all the complexity and interdependence of what is presented to the customer, against the complexity and interdependence of how we configure systems consistently across the network and across devices. Plans that call upon the same network resources at the same time need to do so in a consistent manner. The service factory seeks to orchestrate new services by assembling "provision-able" service components, with consistent provisioning processes and B/OSS interfaces.

A service factory approach allows operators to balance the needs of rapid service innovation and the need for optimum operational and IT cost in delivering those services. The approach is as much about product development mindset as it is about systems, and does not require a 'big bang' of system transformation.

But as value chains continue to evolve, and product managers exercise their creativity, OSS strategists must continue to expand their ambition for a service factory. Not simply automated delivery of today's products using re-useable components, but a completely generic capability for defining, accessing, connecting and delivering to customers a compelling and innovative experience.

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About Telcordia:

Telcordia is the industry's go-to expert for solving the most complex communications challenges. As the global leader in mobile, broadband, and enterprise communications software and services, Telcordia helps communications service providers (CSPs), suppliers, and governments get it right as they realize the potential of new market opportunities, network technologies, and customer experiences. Our deep expertise in telecom operations delivers solutions that fully understand our customers' needs and incorporate proven industry best practice.

With our consulting, next-generation OSS, network and application interconnection, service delivery and charging, industry research, and new technology development solutions, our customers are able to achieve brand differentiation, drive revenue, and deploy innovative, advanced services.

We use our industry experience and expertise to understand our customers' technology, market, and opportunities; address our customers' business challenges and goals with proven solutions that enable them to anticipate, plan, and execute; and deliver solutions when promised as promised to ensure the highest standard of customer satisfaction.

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