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# Making Your N-Play Power Play – Fulfillment Automation Strategies for the Move Beyond Double-, Triple-, and Quad-Play

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Imagine that we live in a bizarre alternate reality world where there is only one kind of motor vehicle:  the pickup truck.

The only family car you would own would be a pickup truck. When you drove the family around someone might have to sit in the bed of the truck. You would commute every day in a pickup truck, through traffic snarls of other pickup trucks.

All goods would be transported, even over long distances, by pickup trucks. There would be no taxis, buses or trains … only pickup trucks with people crammed into the truck beds.

Police, fire, and paramedic first responders would race to the scenes of crimes and accidents in pickup trucks.

And speaking of racing, the Indy 500, Monaco Grand Prix, and other famous races would all feature pickup trucks striving to outrun one another.

It would be a strange and silly world, wouldn't it?

Yet, this alternate reality mirrors the current state of telecom services in many ways as our industry moves toward content-based services.

Specifically, when we try to move different types of content to subscribers over connections that are not optimized for that type of content, we are effectively using a "one size fits all" approach to service delivery. That's about like forcing everyone in the world to drive pickup trucks … There is only a subset of cases in which it is the optimal solution.

## The Move to N-Play Services

A battle is under way for "share of wallet." For example, telcos who chose to offer IPTV services and video-on-demand are not competing with only the cable companies; They also are competing against the local DVD rental store.

As telecom grows increasingly competitive, operators are leveraging their converged infrastructure to offer double-play, triple-play, quad-play … up to N-Play services. This march into the multi-play world means that telcos now must recognize that a service is not simply connectivity like it once was. Instead, services comprise both the connectivity and the content that is ultimately destined for consumption by the subscriber.


Content-based services effectively demand application-driven Quality of Service. That is, the application being used to deliver content to the end subscriber – IPTV, VoIP, Gaming, Hosted Apps, etc. – should dictate the QoS and other parameters of the connectivity that is used to carry that content. This is especially true in services such as television, where a relatively high standard of quality that subscribers are accustomed to and will demand. If an IPTV service cannot meet that standard, then subscribers will churn away to competitors.

Some people argue that the connectivity requirements for content can be solved by massive overbuilding of capacity, essentially throwing tons of bandwidth at the problem. While that might seem plausible, it does not really solve the problem, for a number of reasons:

- Capacity planning is often a challenging task, and keeping far enough ahead of the curve to permit massive "safety stock" of capacity to cover anticipated traffic is even more difficult. This is especially true of new services that have unknown or estimated take rates.
- Contention and traffic bottlenecks crop up, especially in access portions of the network, and the time it takes to respond and solve a given bottleneck probably is more time than a subscriber is willing to wait before calling your competitor.
- Power users are unpredictable and may become bandwidth hogs at times you do not anticipate, further worsening the potential for traffic contention in access portions of the network.
- Massive overbuilding is extraordinarily expensive. And even if you establish a large cushion of extra capacity, there is no telling whether that capacity will

be sufficient for tomorrow's applications. Our networked life styles have evolved from voice, email, and simple web surfing – which used a relative trickle of capacity – to bandwidth hungry applications like gaming, and music downloads, video conferencing, and television.

In summary, good operations principles, which are universal across all industries, call for the most efficient use of resources, maximizing the profit generated by the resource as it is consumed. The same holds true for network capacity.

With this principle in mind, then, operators need to establish Operations Support Systems that are able to actively manage in tandem the connectivity in the network with the application serving up content. This calls for the ability to orchestrate between these domains, and to do so at a level that is as automated as possible. This requirement places some further fundamental requirements on the OSS:

- Service definitions and the service catalog need to contain representations of the "complete" service, both the connectivity and the application or content aspects. For example, Sports Gold IPTV service may have a certain channel collection, including a certain number of high definition channels, and the associated bandwidth defined to support those channels.
- The actual state of resources must be understood in as close to a real-time basis as possible. This is necessary so that resource contention can be avoided in the design phases of a specific service instance. In addition, it is essential to understand the actual availability and capability of network resources to ensure that a given service request can be fulfilled.
- The concept of an order must change and must be able to be managed from any direction, especially if customer self-service is to be established. This means an order or a service configuration change request may come from a traditional channel like a Customer Service Representative, or from a web site, a mobile phone, or a set-top box.
- The provisioning and activation of the service itself must occur automatically, with minimal or no fall-out, and the orchestration between the application and the connectivity must be maintained as an on-going process. For example, a subscriber may self-manage their account and decide to add an HD channel to their service package. The connectivity for their service will then need to be ratcheted up to handle their new bandwidth requirements of the HD channel. This change must occur as quickly as possible to maximize responsiveness to the subscriber. Therefore, automation of the orchestration is essential.

The primary point is that the fulfillment system must be able to handle this orchestration, or else contention and sub-optimal service delivery will result. If the neighbor starts a VoIP call and that causes the IPTV to jitter, there will be some very unhappy subscribers soon jumping ship.

## The Connection-Agnostic Application

The relationship between applications and connectivity becomes even more challenging when you consider the leap to fixed-mobile convergence. For instance, a service offering may include the option for a subscriber's phone to operate as a mobile phone when they are away from home, but then to have traffic directed over the wired connection via WiFi when they are at home. The application is the same – VoIP – but the connectivity can take two different forms. So the definition or template of that service must incorporate both the application and both types of connectivity, especially if we want to be able to allow the subscriber to move seamlessly from one network to the other during the same phone call.




In effect, we are creating an environment where a content-serving application can be connection-agnostic, utilizing the network resources of whatever type in a way that is appropriate to achieving the desired subscriber experience.

Obviously, a certain accommodation would have to be made for the subscriber terminal, and applications will need to be sophisticated enough to understand the terminal capabilities.

This ultimately is the key to fielding the so-called "third screen" applications that take advantage of all the ways that a subscriber can interact with the application so a subscriber may watch a sporting event on the television, receive a secondary feed of information about players or statistics on the mobile phone, and view alternate camera angles of an instant replay on the PC. For this to be possible, the initial configuration of the service must incorporate an understanding of the capabilities of each of the receiving devices – PC, set-top box/TV, mobile phone – and must also establish the bandwidth requirements to deliver the content to each of the screens.

In fact, orchestration really must be extended across not only connectivity and content, but it also must encompass the end-user device's parameters and characteristics in order to establish the appropriate requirements for the connectivity and content. If a device has certain graphics limitations, memory parameters, or a unique form factor, these characteristics must be part of the orchestration equation if the service is going to be managed on a true end-to-end basis.

Once the service is activated, any changes to the parameters associated with one "arm" of the three part service, such as a decrease in the bandwidth contracted for by the subscriber, needs to be orchestrated with the application to reconfigure the overall service parameters.

Like this example, the more advanced and increasingly sophisticated applications will be required to traverse different types of connectivity that can reach the subscriber. The definition of what constitutes a service will evolve even further, and the need to establish traffic transport that is appropriate to the type of content will become even more necessary.

Without making that link between managing connectivity and managing content, the subscriber experience cannot be guaranteed, and mismatches between content and the connectivity would be rampant. Just like in a world of only pickup trucks, a mismatch between the method of transportation and the intent of the transportation will surely result in a less than ideal experience for all.

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