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Is there a role for Open Source OSS-BSS in Telecom?
By Barbara Lancaster

"In the Beginning…"

Some history for our younger readers: once upon a time, the information systems used by all businesses, including phone companies, were card indexes. That's right, made from trees. Then smart people began to seize the idea that those new-fangled computers might help us organize our data and run our businesses more effectively. With no commercial products out there to buy to do the job, we built our own. Card records were replaced with mass electronic storage. Each department worked independently with the IT department to automate parts of the business processes it controlled. By today's standards these systems were klutzy but they represented a great leap forward conceptually. Back then, thirty or forty years ago, the only people who knew anything about telco OSS/BSS worked in the phone companies.

In due course, telco competition appeared on the scene. This created a large number of new telcos and a real market for software that could be used to run these companies. Some telco specialists saw the opportunity to start up their own OSS/BSS enterprises, taking their passion and expertise to the wider market. Some telcos floated off their IT development departments to service this new market. The commercial off-the-shelf (COTS) market was born.

Even with the lower cost that packaged OSS/BSS applications offer over individual hand crafted systems (and even agreeing that even the most monolithic of hand crafted systems affords better productivity than manual everything), the cost of building and running this type of computing environment is widely perceived as too high. This is painfully obvious when set against the pressure on profit margins created by increased competition. Yet, this is the status quo, despite the fact that

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for at least fifteen years, the industry has sought a better way. Keith Willetts, at the TMForum, has long described the high cost of making commercial applications work with each other as the "Integration Tax" and rallied TMForum members to move towards small, business function-aware applications that could share a common foundation of data, security and housekeeping tools, thereby dramatically reducing costs and increasing flexibility. A few telcos and vendors have tried to work towards the flexibility and lower cost of ownership that could be achieved by following the NGOSS principles. However, for the significant majority of telcos, the integration tax is still very much an expensive reality.

More recently, SOA, along with streamlined integration and data exchange supported by things like XML and SOAP, promised to enable that break up of monolithic systems tied together too tightly. We are seeing some case studies indicating that cost savings are being achieved. Yet there is another approach that a few telcos are investigating that might tackle this issue from a rather different direction: open source.

Now Open

Open source has a credible presence in many areas that are not light years away from the needs of phone companies. In many business areas we see open source applications existing, and even flourishing, alongside commercial products. Open source has strong offerings in: HTTP servers, Content Management, Software Configuration Management, Cloud Computing. There are competitive or at least credible players in CRM, Enterprise Documentation Management, Voice/Video Conferencing, IP-PBX, Enterprise NMS, and more. Many of these exist as part of commercial/open source hybrid offerings.

Sometimes, commercial companies build their products around an open source core, adding a proprietary layer to meet the exact requirements of their target customers (for example: IBM/Apache/Websphere, Alfresco, FUSE/Artix). In other cases, open source software provides the complete foundation for services businesses (RedHat, Sun/MySQL, OpenNMS, for example). Commercial companies further support the evolution of the open source software, which nevertheless remains open and available for all to use, so there are benefits all around. These hybrid or symbiotic models have emerged specifically to address the needs and concerns of customers, especially enterprise customers, about implementation support and maintenance, and are evidently becoming more popular.

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Open source can (when deployed in the right way, with capable in-house resources) reduce total cost of ownership. Interested? We should be. On the face of it, we might think that an open source-driven architecture should emerge some time as a credible option for phone companies. So what are the chances that open source software will play a role in the highly specialist area of telecom OSS/BSS?

What We Have to Work With

Today there are not many carrier-grade OSS/BSS products in the telco industry. The contributing community is not yet large, and actual products are few. There's OSS/J, of course, and OSSbeans, a library of Java classes for OSS/J interfaces. OSS/J and OSSbeans will be subsumed by the TMF's open interface project (TIP). More than 1,000 members of the TMForum have joined the TIP group. Vendors and Service Providers are well represented from around the world. Just to name a few participating vendors: HP, Cisco, Juniper, Huawei, OSI, Sun Microsystems, ADVA Optical, OpenNMS, Ericsson and Alcatel Lucent. Service provider members include Bharti Airtel, Verizon, Telstra, BT, Swisscom, Telus, AsiaCell, and Deutsche Telekom. Clearly, a lot of people are tracking developments closely, and many are actively driving the Forum's OpenOSS Catalyst project and the TIP itself. One of the most active perhaps is OpenNMS Group (a commercial company that services OpenNMS). Their open source network management product is quite widely used in enterprises, and they clearly have aspirations in the telco space as evidenced by their leading role in the TMForum programs.

Depending on your perspective, this still modest amount of open source activity can be perceived as the start of something big… or as an exploratory effort that's not going far.

To answer the question about the relevance of open source in telecom support systems, we need to look for two things: clear business advantage for the participants (which drives the expansion of a user community), and the availability of motivated expert developers (which drives the expansion of a development community). Clearly commercial companies only contribute as developers if there is some way in which they can benefit as users or vendors too.

Who's In?

Who are the likely players? Let's look at the big incumbent phone companies first. Is there a business need? Perhaps - because the integration tax applies to everyone. But the big phone companies

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mostly have their support environments in place and they have solid relationships with the big systems vendors. And the big incumbents have other things to worry about just now that are probably perceived to be more important than collaborating in the OSS/BSS space. Furthermore, with aggressive cost cutting in recent years, many of the people that telcos used to employ to build their in-house applications have retired, or have left to work in other industries, or for some, their own Support System COTS companies. Of all possible interested parties, the big phone companies right now have minimal business pressure to participate in open source, and negligible ability to contribute in any case.

Small and medium-tier phone companies, wireless and wireline, are in a slightly different place. Many of these companies still have gaps in their OSS/BSS application suite. Sometimes it still looks more economical to use a few people to do something than to buy a commercial product. Some of these companies still have a handful of in-house developers, supporting home-grown applications that have been around for years. Many smaller telcos are desperately in need of modernization, but are finding it difficult to find the funds to do the job using commercial products. Furthermore these companies have a tradition of collaboration with each other – they club together to get bigger discounts from equipment vendors, for example. They have joint marketing programs, to share costs. They meet to discuss regulation and legal matters. So here, there is a more evident business driver, and these companies, collectively, have resources that could provide a meaningful contribution. There is a question though: can they do this before they are absorbed by one of the giants?

And how about the COTS companies? Will they rush to donate their code to an open-source .org for the better good of the industry? Probably no more enthusiastically than they rushed to fragment their applications into tiny functional modules, a la NGOSS, so that telcos could pick and choose the chunks they liked best. (This is not a criticism – they do what they believe makes sense for their businesses.) Although many vendors make more money from professional services and support than they do from licenses, it is the tied-in nature of the product that enables these sustainable revenues – and reduces competitive pressures. So it is unlikely they will be prime movers in the creation of open source products. But if someone else gets the ball rolling, they might find it expedient to contribute in niche areas in due course. They certainly have the capabilities.

Another possibility is the community of over-the-top service providers. Many of these companies already have strong develop-ment teams and some already sponsor open source. Google (to name the obvious one) is already a heavy user and contributor. Android is a telecom application open source project, albeit at the edge. OTT services, including voice and video, are just applications.

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Managing these services, and billing for them are just more applications that can sit in the cloud as readily as on a local server. Will these companies be interested? If net neutrality legislation opens the field to all-comers to provide competitive communications, it seems likely that this community will look at open source as a viable option for managing and billing for these services. They can get this off the ground quite quickly by going for simplicity and standardization in service design, by deploying very simple pricing structures, and offering modest (or no) service quality guarantees. It might not be sophisticated, but it could work.

Eventually, the most successful open source products could trickle into the big incumbents, for niche applications. That would be interesting.

In Practice:

The traditional phone companies may dominate the telecom industry but they do not own it. It may be that ultimately core transport will be owned by a relatively small number of giant companies – infrastructure cost providing a high barrier to entry. The multiplicity of access technologies may permit more companies to compete in the access space. Access is all very well – it's a prerequisite, just like highways are necessary before people buy cars. But … applications will be open to all-comers, and here, open source software has the potential to reduce the barrier to entry to a small bump in the road, easily negotiated by anyone with a server or two.

Applications – voice and video communications, messaging, content delivery services – are what make people spend those extra dollars. And these are the areas in which new service providers will proliferate. Here, open source software has the ability to lower the entry barrier while still providing effective, cheap and cheerful functionality.

The bottom line may well be that while large telcos will not widely embrace open source OSS/BSS applications in the near term, smaller incumbents and the new generation of OTT service providers will. For everyone, selected open source applications could potentially help control costs and drive new services revenues, in a niche role within incumbents and in a more widespread way in new competitive service providers. It follows that smart people in telcos are already looking seriously at how open source will play out in this environment. I have been discussing this topic with a few telco decision-makers and their strategy advisors, and plan to cover their perspectives in more detail in a follow-up article.

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