Perspectives on Revenue and Operational Assurance for Communications Service Providers

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THE ROC RESOURCE BOOK

building a revenue operations center

MANAGING THE IMPACT OF OPERATIONS ON PROFIT

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JEFF COTRUPE
CEO AND FOUNDER,
MARKETPOWER

the revenue assurance revolution

rocs help operators evolve financial controls out of billing and inventory silos

Who can afford to lose money these days? Telecom companies can't as they face tough competition as well as stringent reporting requirements and escalating investor expectations. One way to offset revenue leakage is to add a revenue operations center (ROC) to your company. Not only will a ROC detect attempts to defraud the network it will make the most of all divisions, such as billing, inventory and IT.

In the conventional voice-services environment, revenue leakage often is considered part of the cost of doing business. But everything changes when content becomes part of the equation. When content traverses a service provider's network – read, yours – you pay for that content, regardless of whether you collect from subscribers. That's a whole new kind of loss. And suddenly, it doesn't matter whether you're a circuit-switched, mobile or data carrier. That's because when you don't bill for everything you deliver, you are losing money. A revenue operations center (ROC) can help fix the problem.

A ROC also can help service providers get a handle on their inventory. In many cases, carriers have operational, yet non-billable, assets lying around. Sometimes there's an unbilled user attached to a device; sometimes there's a device, but no user. Either way, the carrier inevitably will buy extra equipment to make up for perceived network holes, when in fact a device exists.

Tracking and billing challenges loom on all sides. Therefore, it is surprising that revenue leakage from all sources is not worse than what it is: 10 to 15 percent of revenue for data services and up to five percent on voice – although as IP telephony continues to propagate worldwide, that figure is on the rise. The worldwide impact of revenue leakage on service providers appears to be in the range of $100 billion. And publicly held service providers in the United States must meet Sarbanes-Oxley reporting and compliance requirements. This becomes difficult or impossible if they cannot properly quantify their networks or the services and sales traveling their networks. Again, the ROC is the answer.

LEAKAGE THEN, LEAKAGE NOW

In the late 1980s, Metromedia was fourth ranked long-distance carrier in the United States. One Monday morning, the employees – including yours truly - were greeted with the news that the company had lost part of its backbone network over the weekend. The network vice president said, "We lost the Houston switch for most of the weekend...but no big loss – most of the attempted traffic was probably toll fraud anyway."

Back then hackers were using blue boxes, which replicated the tones used to switch long-distance calls and routed calls to bypass the normal switching mechanism and charges. Criminals

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made their first forays into identity theft, stealing long-distance calling card numbers and, later, cloning cell phones. In response, Metromedia added a new loss prevention and toll fraud team.

The evolution of telecom technologies has taken care of some of this fraud. The blue box – named because the first such device confiscated by Bell System security was in a blue plastic case – no longer works in most networks. Now, rather than placing calls with the in-band signaling that the blue box emulates, digital networks use SS7 out-of-band signaling. Carriers have made it a lot harder to "clone" mobile phones, but there still are hackers "sniffing" cellular networks, particularly GSM, to obtain electronic serial numbers and mobile identification numbers. And while telecom networks have improved, perhaps business ethics have not. ROCs help with these problems.

ETHICS LEAKAGE

In the late 1990s one of the carriers ahead of Metromedia – let's call it Carrier X – launched an international callback plan. When per-minute calling rates from the U.S. to other countries became lower than calling rates from those countries to the U.S., and to each other, Carrier X and others provided a certain service. A caller in another country would, in effect, "ping" Carrier X's network; then, Carrier X automatically dialed the foreign caller back and provided an open line for calling anyone at a lower price than would have been paid by dialing direct. In effect, Carrier X was using foreign carriers' networks to provide service while denying those carriers the international calling fees they would otherwise have earned.

In the late 1990s and early 2000s another of those three providers – let's call it Carrier Y – got itself in a spot of trouble. Carrier Y allegedly routed long-distance calls through other carriers, and through Canada, to avoid paying access charges. In 2003, Carrier X accused Carrier Y of unlawfully re-routing its long-distance traffic through Canada and onto Carrier X's network. This caused Carrier X to pay for the fees associated with interexchange access to the local networks of another carrier – Carrier Z; otherwise, Carrier Y would have had to pay. Carrier Y responded by describing these creative traffic management strategies as "least cost routing."

REVENUE – AND CAPEX – LEAKAGE

Those are some of the ethical problems that highlighted the need for a comprehensive approach to revenue assurance. But other, more "passive" sources of revenue leakage are just as deadly. For example, "ghosts" emerge when network resources are allocated and service is activated, but the billing system doesn't know. So, the customer uses a service without ever being billed. "Misbilled customers" represent a variation of this problem. For example, a customer's service is configured for premium DSL access, but billing is set up for the lowest/minimum DSL. The customer gets the higher-cost service at a bare-bones price. "Ghost colonies" can also arise. This happens when thousands of users are provisioned through network elements that are fully operational but that do not exist in the carrier's inventory/resource management or billing systems. Certainly these various "ghost" problems result in nightmare scenarios where significant revenue is lost.

While these problems are worsening in the circuit-switched world, look out in the IP world. Today, quadrillions of SIP transactions send IP packets across networks – whether those of network owners or every network partner with which they do business. Service providers are overwhelmed trying to track and bill for IP transactions. And just when the flames did not need to be fanned, the mergers and acquisitions creating new global supercarriers means a new breed of convergent services must be delivered over multiple networks throughout the world, thus opening the door to more tracking, billing, and revenue loss problems. When content enters the picture, and service providers fail to bill for anything they're providing, the losses mount. Integration efforts aim to help solve these problems, but they don't necessarily succeed.

SEPARATE BUT EQUAL BILLING

If the word "integrated" has been tied up with network management and OSS/BSS once, they've been associated a million times. Yet, for decades, the words and intent didn't match up. All of the new service fulfillment and assurance solutions that were supposed to be more "integrated" than the last treated billing and toll fraud as separate but equal entities. Billing sat on the back burner. As proof, more than a few research firms didn't cover billing and

still don't. Finally, though, cable and telecom companies figured out that they needed to combine cable or DSL activation modules with partner billing products. This ensured that customer care and billing systems knew about subscribers, and knew which services had been ordered. A lot of people in telecom rejoiced. The problem wasn't solved, though. All of the revenue leakage, carrier-to-carrier settlements, occasional "ethics leakage," and the tendency to treat revenue as a silo, still called for a change.

THE REVENUE OPERATIONS CENTER PULLS IT TOGETHER

That change is the ROC. Much as a network operations center lets an operator monitor the network and services, a ROC correlates the impacts on revenue, cost and financial statements. The ROC combines revenue assurance, inventory accuracy and data integrity to give service providers much more control over their finances.

The ROC can be the link between operations and profit. It provides centralized systems and processes for monitoring, measurement and control of operations affecting costs, revenues and, ultimately, profit. The trend toward a ROC is marked by developments such as blurred lines between classic OSS and BSS camps. Operators who have invested in building a ROC are doing so to measure and monitor how operations contribute to the bottom line; how services are performing financially; and what the enterprise needs to do to improve that performance.

Implementing a ROC also means it no longer is acceptable for an operator to assume that revenue and costs are separate from operations and network asset management. IT is becoming a more visible business investment. Higher visibility means companies want to see the return on their investments. Showing value requires accounting for cost and performance, and next-generation asset management (NGAM) is a technique that can help to achieve it. NGAM views assets not as static entities that go through lifecycle procurement to retirement, but as performing, dynamic entities contributing to IT services. NGAM provides a means to quantify and demonstrate the quality, performance, costs and value associated with IT services. Therefore, it's also a way to change perceptions of IT departments to their rightful places as internal providers of business-critical services.

As the telecom world begins to see past inventory and resource management in favor of asset management, service providers and vendors need to incorporate detailed NGAM data and profiles into the ROC. If the goal is to deliver an all-in-one view of cost across the carrier enterprise, they must do this. Plus, sharing information among units becomes even more critical as demand for content increases. Implementing a ROC can pull together all of these facets.

TYPES OF REVENUE LEAKAGE A ROC CAN CORRECT

- **Network re-routing** More common in the late '90s, carriers would ping other networks, then route international calls through those pipes without paying the associated fees.
- **Mobile phone cloning** Hackers steal serial numbers or other identification to hijack subscribers' service.
- **Misbilled customers** A subscriber's premium service gets billed at wrong, lower prices.
- **Ghosts** Customers using a service the billing system doesn't know they have.
- **Ghost colonies** Thousands of users getting service but the provider's systems aren't aware.

Jeff Cotrupe is CEO of MarketPOWER, LLC, which he founded in 2003. Cotrupe is a former practice leader at Gartner and director at ADC (Nasdaq: ADCT). Cotrupe has provided analyst services to Yankee Group and strategic consulting services from the Silicon Valley to a spinoff of Telecom Italia; relaunched companies and helped others win tens of millions in Series A-B-C venture capital funding; and named products and companies including Stratecast (a division of Frost & Sullivan). Cotrupe earned his B.A. at Auburn Uniiversity, Radio Telecommunications certification from the Federal Communications Commission (FCC) and advanced certification from Young & Rubicam. He can be reached at http://marketpowerLLC.com or jeffcotrupe@marketpowerLLC.com.

> "The ROC can be the link between operations and profit."

Accomplish Operational Dexterity

Ensure sustained profitable growth

Today's most profitable communications service providers know the value of combining lean operations with service agility.

- Extract greater value from the network
- Reduce risks to the revenue chain
- Leapfrog the competition with innovative service bundles
- Bring to market content-based services
- Achieve subscriber lock-in with sticky service offerings
- Adopt operational assurance practices to optimize processes

Subex is a leading global provider of Operations Support System and Business Support System solutions that empower you to achieve operational dexterity.

Subex pioneered the strategic concept of the Revenue Operations Center (ROC) - a centralized and integrated infrastructure for end-to-end monitoring, measurement and control of operational impacts on revenue, costs and profit.

Subex's customers include 32 of the world's 50 largest telecom operators by revenue. The company has more than 150 installations in over 60 countries. Best-in-class software solutions enabling: new service creation, subscriber-centric fulfillment, provisioning automation, revenue assurance & cost management, data integrity management, fraud management and interconnect/interparty settlement.

To find out more, visit http://www.subexworld.com **or** contact us at

USA: +1 303 301 6200
INDIA: +91 80 6659 8700
UK: +44 20 7826 5420

CANADA: +1 905 886 7818
DUBAI: +971 4 3642591
SINGAPORE: +65 6338 1218

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