Metanoia, Inc.
Critical Systems Thinking™

Provider Network Health Assessment

Vishal Sharma, PhD, Principal, Metanoia, Inc. tells InterComms how the robust Metanoia, Inc. framework allows carriers to profit from smart service and performance management

Dr. Vishal Sharma, Principal, Metanoia, Inc

Dr. Vishal Sharma, Principal at Metanoia, Inc. in Silicon Valley, is a seasoned international telecom industry expert with global exposure, who has executed assignments for clients on 4 continents, and, over two decades, has played multi-faceted roles, including: entrepreneur, technologist, technical leader, academic, educator, technology writer & editor, speaker, and researcher.

Metanoia, Inc., a leader in bringing focus to carrier-centric issues for over a decade, uses its unique assessment framework, deep-knowledge of the full service provider eco-system, and elite team of world-class experts to help operators and vendors make sound strategic and technical decisions that are critical to grow, sustain profitability, and thrive in the long-run.

They help clients accelerate technology design and development or network design and deployment, master complex technologies, slash learning cycles, speed time-to-market, & enhance customer-interactions, thereby increasing profits and productivity in ways that are financially measureable.

They work with network planning & design and network engineering and operations at carriers or with systems engineering, product planning, and product management at vendors, to accelerate next-generation network/systems requirements, analysis, architecture, and design. Metanoia, Inc. also work closely with executive & engineering management and technical leaders to speed-up product development/service deployment, using their deep technology base, extensive market knowledge, and 360-degree perspective.

Q: In our discussions, you mentioned that a burning question before carrier executives today is: *"How do we efficiently operate networks that perform optimally and provide an excellent end-user experience, while lowering our total cost of ownership (TCO) and increasing profitability?"* How do you address this using your provider network health assessment framework, which we've been hearing about lately?

A: Service provider executives today undoubtedly face a barrage of critical questions. Upon analyzing these, with our decade+ rich experience in the telco eco-system, we realized two vital facts:

First, answering these requires a systematic analysis of their business and technology, which is often lacking.

This begs a **framework [1]** that will allow them to examine the two holistically, and analyze their interconnections. So we cleverly condensed a carrier's operations into a set of **core focus areas** *(Figure 1)* that are fundamental to its business but independent of operator- type, size, geography or vertical. Our framework enables an efficient resolution of carrier issues by mapping each to a core area(s), and then furnishing an effective plan to streamline operations.

Second, with diversity in systems & technology, industry-wide co-opetition is the key to cracking hard problems. The industry needs to come together in a collaborative environment to contemplate solutions to demanding operator issues, a philosophy that underpins our many leading initiatives [2], [3], which I'll discuss shortly.

Q: How does your framework apply in the service delivery and service management arena, and how do you help operators there?

A: In the service- and performance-management arena this framework [1] is critical. Smart strategies to keep the network and its services running smoothly are vital and the foundation of an operator's network management plan.

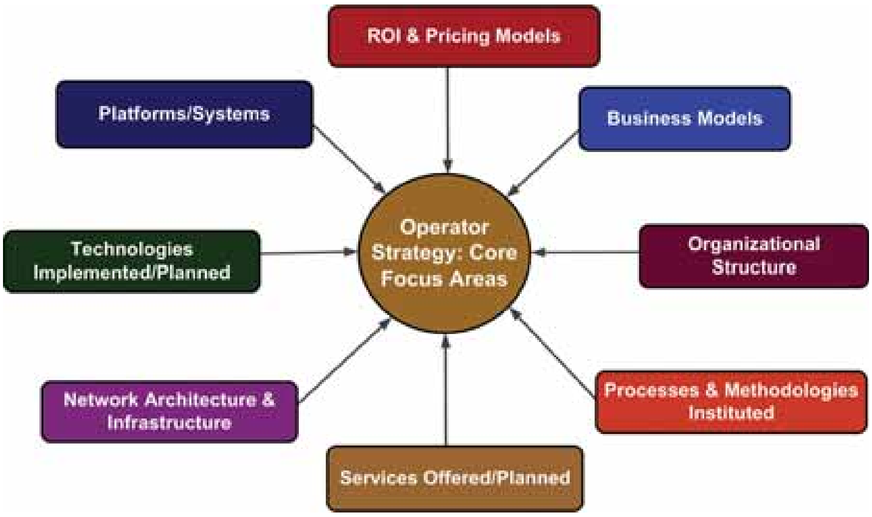

Figure 1
Provider Network Health Assessment Framework ™: Core Focus Areas

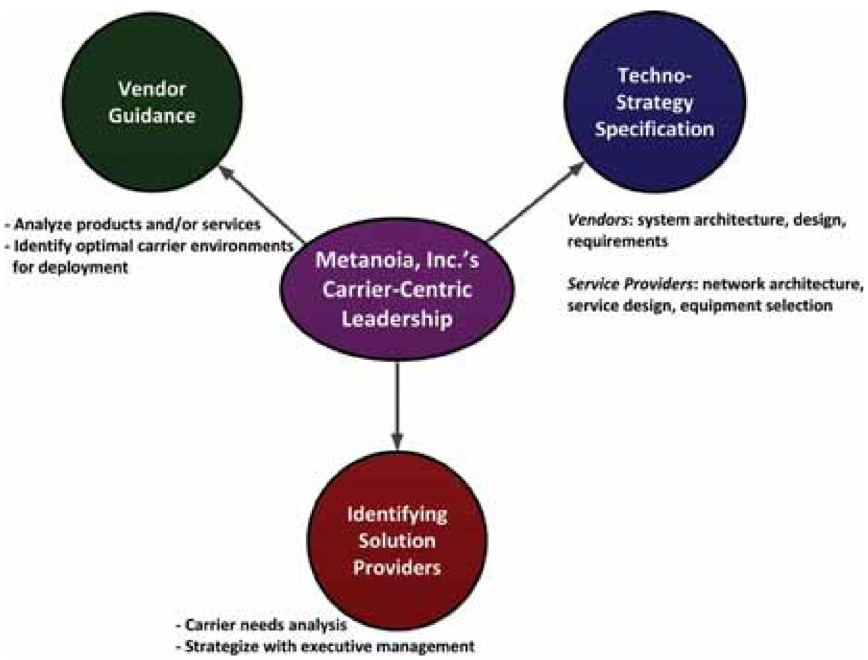

Figure 2 Metanoia, Inc.: Carrier-centric Leadership Activities

For example, depending on a carrier's specific situation, health assessment would help decide whether it needs to deploy better network management systems, or deploy existing systems better, or operate them better, or perform measurements better, or enhance its back-end OSS/BSS or monitoring systems to perform proactive management. Each of the preceding actions could markedly improve network health, and, thereby, operational cost.

We help operators *(cf. Figure 2)* here by: (a) using our historical insight into the eco-system and our framework to incisively hone-in on a carrier's business and technology environment and needs, and (b) using our deep understanding of solution providers to immediately identify the best players and strategies to meet those needs.

Likewise, because we have a fundamental understanding of a range of solutions and their applicability in multiple operator classes, we can also guide solution providers about carriers that are best-suited to utilize their solutions.

The three mini case studies ahead demonstrate how we serve as a bridge between carriers and solution providers, using our expertise and our 360°-perspective on operator needs to benefit both.

Q: In the smart monitoring and performance management space you just spoke about, what do you see as key trends in the state-of-the-art? Why?

A: First, let me reiterate that agile monitoring/management is essential to keep the network operational, and should form the basis of a carrier's customer experience management plan.

With the growing diversity of services and technologies, we see three advances in the state-of-the-art helping operators immensely *(see Figure 3 for a list of emerging areas, and [4] for details)*:

- Proactive & Predictive Management
- Smart, Integrated Systems with Multi-Layer Monitoring
- Rapid Service Deployment Software and Systems

Let us see why.

Most carrier operations today are reactive, meaning the staff acts after an outage or break occurs. A 2010 Telcordia study pegged the cost per network-downtime incident as high as $750,000, which adds up fast! (Witness the O2 and Orange outages in July, which caused much customer consternation and carrier expense.) The three developments above, address this (cf. [4]).

With proactive diagnosis and reporting, changes in: configuration, logical entities, and performance could be reported to the operator in advance, so that anomalies are handled ahead of actual trouble. Deviations of the operational network from the designed baseline or impairments in end-user application performance could be detected in real-time, enabling proactive (and eventually predictive) action, saving the carrier millions in cost, lost revenue, and damages.

Smart integrated systems, likewise, consolidate multiple layers, e.g. DWDM, SONET/SDH, ATM, Ethernet and IP, in a single system, saving capex. Additionally, they can now incorporate multi-layer monitoring capabilities, and, via smart software, can expose monitored parameters through a single portal, giving the operator superior visibility of network layers, and simplifying management and fault correlation. This speeds fault resolution and service restoration, directly helping the carriers' bottom line.

Finally, the operator environment is becoming highly dynamic, with time-varying demands e.g., streaming VoD, webcasting events, or replicating a data center, which requires network agility, the rapid creation of on-demand virtual networks with time-limited bandwidth reservations. To provision such services, network resources must be exposed to software applications. This gives the operator visibility and flexibility in bandwidth usage and managing network assets, and a pay-for-use capability yielding precious savings.

Our partners, e.g. OPNET Technologies, BTI Systems, Cariden, play key roles above.

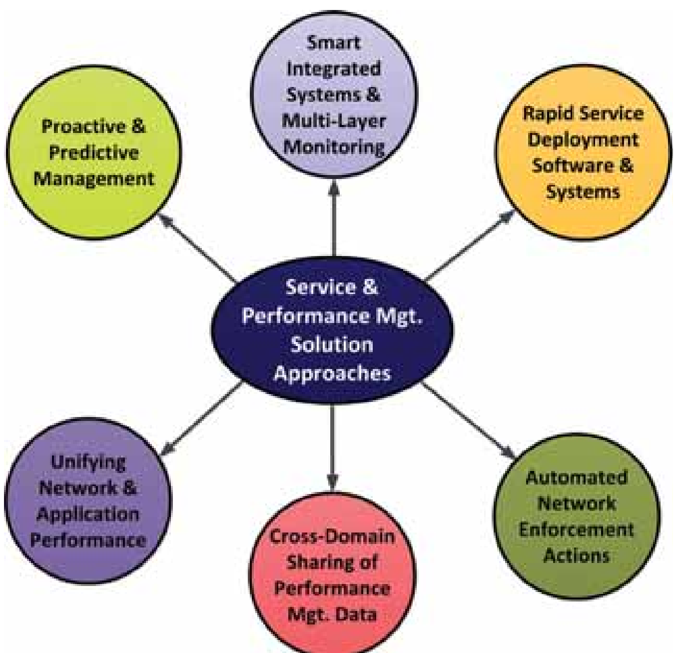

Figure 3
Service & Performance Management: Emerging Solution Approaches

Q: You spoke of three key evolving trends/capabilities in the service and performance management space. Could you share some examples or case studies that would illustrate which operator environments these are most applicable for, and some representative solution providers that an operator may rely on to instantiate these capabilities?

A: Absolutely!

First, suppose an operator with a converged voice, video, data network, and diverse services -- 911-voice, analog video, VoD, high-speed data – where proactive management was valuable due to its scale and complexity, asked: Can I

- Correlate metrics to understand performance problems?
- Identify atypical behaviors in real-time?
- Analyze the behavioral impact of a change or validate against a "golden config"?
- Integrate network- and application- performance monitoring/management (APM)?
- Have a proven vendor team integrate proactive change validation (PCV) into my business process?

Then a suggested partner could be OPNET [4], with their PCV and APM capabilities.

Second, if a wireless operator, building an access/metro network for backhaul, asked: Can I get:

- Edge devices that integrate optical, TDM, and packets?
- Visibility across my network?
- Real-time monitoring, visualization, and provisioning?
- A service-centric view of my infrastructure, with node management & FCAPS?
- Ability to configure flexible MEF-based customer profiles, service templates?

Then a valuable partner might be BTI [4], building packet-optical systems with it's integrated service manager.

Finally, if a cloud operator building an operational SDN solution or performing data center migration, asked: Can I get:

- A proven programmable platform to manage bandwidth on?
- Ability to abstract, visualize, and control, network resources and complexity?
- Capability to configure data center replication?
- An interface that the application can program?
- A provider with substantial deployment and operational experience?

Then, a logical partner might be Cariden [4], with its NS-OS system for infrastructure SDN.

These are just three examples of how we would analyze operator needs, help them understand the value of different solutions [4], and choose one (or more) that works for them.

This area is ripe for cooperation between players, in which we're leading the way [4]. Starting with chip companies (e.g. Broadcom, EZChip) for hardware-based, real-time OAM; network management & automation players (Cariden, OPNET, WANDL, VPI) for network analytics, technology migration & service design; OSS/BSS vendors (e.g. Amdocs, Cramer, NetCracker) to tie monitoring to higher-layer operations, or system vendors (the usual big guns plus forward-looking players like BTI, Telco Systems, Cyan, RAD) for multi-layer monitoring, real-time SLA conformance, and dynamic provisioning; and, of course, operators - rural, regional, international, data center, MSOs, CLECs - optimizing their networks & services (e.g. giants like BT and Telstra, to Vivo and MTN to Rackspace, SIFY, and Cox).

Q: You've undertaken some interesting initiatives to bring the eco-system's focus on major service provider issues, such as network and performance management. Share a bit what you're doing in this space and why?

A: We're very excited to be advancing the state-of-the-art in the eco-system using a unique model of co-opetition! [2] Each of our discourses at marquee events [3], is aimed at bringing experts (even competitors) together in a spirit of collaboration, open discussion designed to highlight issues and needed solutions, whose lessons are freely available for the eco-system to use in their processes and products [2], [4]! We believe there is ample room for every player to innovate. Indeed, competitors sit at the table learning where they can invent, improve, partner, refine offerings, or create complementary ones to collectively solve carriers' problem(s), since no one company can do it alone.

We've recently lead two dozen events/roundtables on operator issues like power-efficient design, measurement, configuration & performance management, OTT- versus infrastructure-operators, and more, attracting 45+ experts, 1,450+ attendees/registrants, from 55+ nations and 100+ companies worldwide!

We're now launching CE Live!™ (offshoot of a 5,400-strong LinkedIn group), a unique venue where open questions from the group will be discussed in live web sessions by international experts, and leaders from vendors and operators. Open issues will be fed back online, so those from far corners of the globe can benefit and contribute. This is unmatched in the industry.

Q: What would your final advice be to CEOs and CTOs? How could you help them?

A: Our message: do not get overly occupied with the hoopla of new technologies, services, and standards.

Rather, concentrate on fundamentals - the core focus areas and framework, make sure you formulate the right questions. E.g. ask yourselves: "Are we using the right technology, with the right platforms, in the right architecture, with the right tools, following the right processes, as per the right business model, and using these in the most effective manner, to produce the most compelling (valuable) products & services for our customers, at the right price points, and, by extension, generating the most effective ROI and greatest (fair) profits for ourselves?"

Analyze just 1-2 areas that will produce the most impact on your business and why. Within each, identify the top 2 issues to tackle to produce the maximum returns. Have an execution plan for those and monitor progress, which is critical *(cf. Figure 4)*.

These principles apply whether it is smart network management, sound network design or sustainable business strategy they're looking at. Of course, we are always available to advise [1], [4], so do reach out to us.

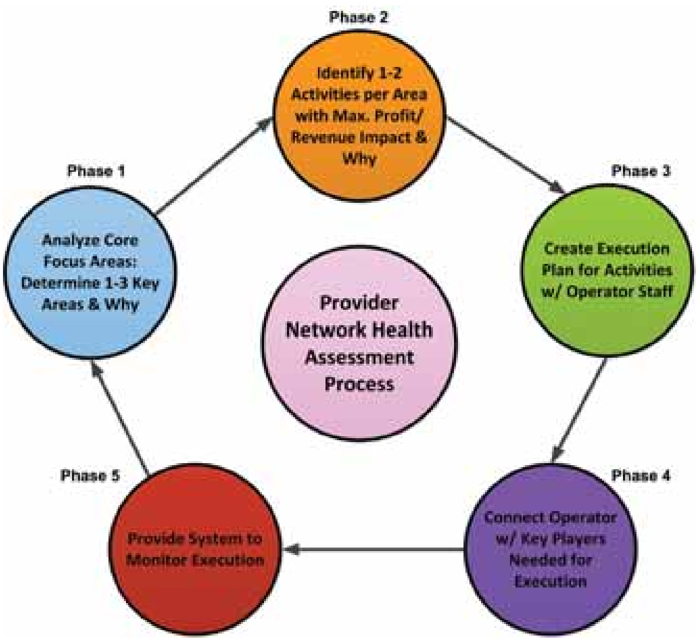

Figure 4 Provider Network Health Assessment Process

For more information visit:
www.metanoia-inc.com
or email experts@metanoia-inc.com
or call +1 650-641-0082.

References

[1] Provider Network Health Assessment Service,
http://www.metanoia-inc.com/#NHAS
[2] Provider Network Health Assessment Forum,
http://www.metanoia-inc.com/blog
[3] Metanoia, Inc. Industry Initiatives
http://www.metanoia-inc.com/news/events.html
[4] Service & Performance Management Hub,
http://www.metanoia-inc.com/projects/SvcMgt