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Ciena MCP becomes Navigator NCS

Re-positioning for Automation

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Executive Summary

Ciena has re-branded its widely used Manage, Control and Plan (**MCP)** optical and IP domain controller as **Navigator Network Control Suite™ (Navigator NCS)**. While name and brand changes sometimes appear superficial, this one is long overdue, and represents a timely focus on cross-layer automation. The fundamental driving goal is to move MCP from being viewed as a *tool* to "Manage, Control and Plan" to being seen as an *automation platform* and a family of automation *applications* that becomes part of an operator's Network Automation Software (NAS).

Navigator NCS is the evolution of Ciena's MCP. Delivering comprehensive automation across layers (much more functional detail below), the rebrand coincides with the latest release, and suggests that it helps customers "Navigate" service paths, operations and automation towards operational efficiencies.

As the telco operations world moves from software that assists manual/expert operations to **autonomic networks** that truly manage themselves, this name change helps buyers identify this important player in the market for what it is and for what it aspires to be.

We also suggest that interested readers refer to our existing profile of Ciena's IP and optical automation solution (which includes Blue Planet components) [here](#).

Context: The IP & Optical Domain Automation Market

There is growing consensus around what Appledore has long held—which is that autonomic networks of the future will really be islands of "autonomic" (meaning self-managing) technology domains[1], linked by cross domain service orchestration ("CDSO"). All of these domains will accept intent-driven orders over their APIs, and automatically find a compliant solution that optimizes the utilization of scarce resources. Furthermore, the best will maintain, heal, and scale those services and resources throughout their lifecycle.

Ciena's Navigator NCS is a leading entry in this marketplace. While it has many tools and visualizations that can be used by experts, at its heart is the ability to automate. Therefore, a name change – from some that suggested traditional point operations – was overdue.

Ciena MCP and/or Navigator NCS can form a full, automated, Layer 0 through Layer 3 management solution. It can also be integrated with **Blue Planet Orchestration**, and other products as needed, to create broader solutions. Blue Planet Orchestration can also integrate across multiple domain controllers either within the optical domain or more broadly. We call this out since that fact has not always been clear from Ciena and Blue Planet's branding and documentation.

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[1] There can also be administrative domains we're just keeping it simple.

History: Manage, Control and Plan

Ciena is one of the world's leading optical players. It is also growing both its technology and market presence in IP routing integrated into optics. Navigator NCS is the third named iteration of their evolution from an optical EMS to a modern IP and optical domain controller – intended to ultimately support autonomic operations.

In the beginning there was Ciena's One Control. One Control was optically focused and can now be viewed as their legacy network management system.

Following One Control and into the present day, Ciena's flagship product has been MCP — which broadly performs management control and planning functions. According to Ciena, the vast majority of clients have moved from One Control to MCP. Over the years, MCP has both grown in terms of its functional sophistication, and its focus on automation. Another big advance is the addition of IP management capabilities.

The latest release of what would have been MCP release 8.0, denotes the advent of Navigator NCS.

According to Ciena, MCP has at roughly 800 deployments across CSP's, government, enterprise, and other global networks such as public cloud. All of these are candidates to evolve from MCP to Navigator NCS.

The market is changing. The message must keep pace.

As we stated earlier, name changes may be no big deal — yet they are a signal to buyers, who are often desperately trying to sift through a confusing set of products. Buyers are trying to clarify what is applicable and what is not, what is real and what is marketing. They are searching for appropriate products to transform network operations from slow to agile, from semi-manual to autonomic, from error prone to error free, from silos to unified. Again, we could spend dozens of pages here but refer interested readers to our upcoming Market Outlook "Principles of Successful Autonomic Networks."

This transition is about much more than incremental cost reduction. It is about effectively managing incredibly complex new technologies such as coherent routing, flexible photonics, cloudified network functions (CNFs), SDN and 5G. It is about complex services that transit multiple carrier networks, multiple nations, interconnect to and into public cloud, and myriad other changes. It is further about **enterprise services that are dynamic,** and which change as projects and supply chains evolve. All of these would overwhelm manual capabilities and drive costs up not down. Since this would be uneconomic, the actual likely outcome without autonomic networks, would be that none of these changes would take place, and the promise (and revenues) of all these new technologies would be lost.

All this is consistent with Ciena's foundational answer to my question: "why the rebrand?" According to Ciena, one of their key differentiators is their software. And also, according to Ciena, "the name MCP did not articulate our value proposition". On the surface, we have found the reason for the rename. **Looking more deeply we suspect this tells us something about Ciena's aspirations for Navigator NCS** and for their future direction and investments.

Products like Navigator NCS are a category (not to promote one product versus another) that will be a major step in the overall transition from traditional, semi-static networks toward autonomics. In Appledore's opinion, Navigator NCS competes with optical controller offerings from **Nokia** (NSP), and **Fujitsu** (as well as others); and with IP controllers from **Nokia** (NSP), **Cisco**, and **Juniper** (Paragon). Looking more broadly to ISV's, we also see it competing with **Netcracker**'s established network domain orchestrator (NDO).

A few of the defining characteristics of successful domain managers are intent driven operation, autonomic closed loops, multi-vendor operation, and more (again, see market outlook link above).

Introducing Navigator NCS

As we already indicated, Navigator NCS is the evolution of Ciena MCP, but what exactly is that?

The graphic, immediately below, is courtesy of Ciena, and provides a handy visual to contextualize several of the points we will discuss in this note. In brief it illustrates, left to right, the multi-layer view and control that is at its heart; Ciena's suite of intelligent applications; and 3 modes of in effect I/O — which also illustrate that it is designed for an open automated environment — but also supports certain capabilities in the cloud, and allows experts to access it directly through a GUI.

Figure 1: Navigator NCS Graphical Summary
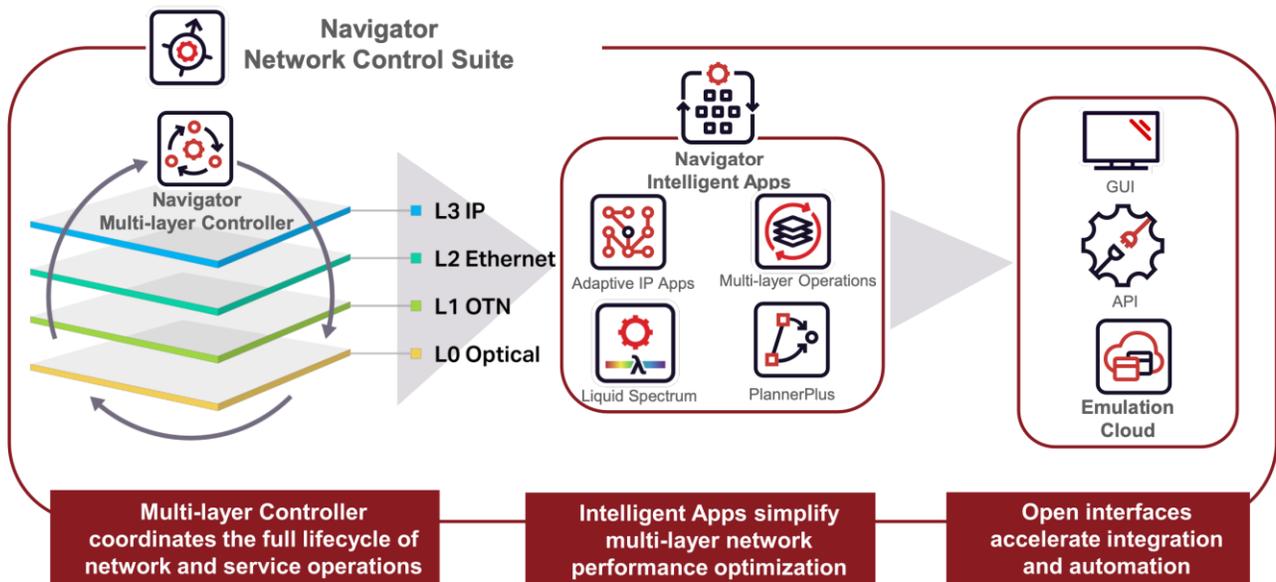
Courtesy: Ciena

Navigator NCS Is a cross-layer dynamic controller for the optical and IP domains. By this we mean that it automates the configuration, fulfillment, diagnostics, healing, scaling, and optimization for services that transit IP networks on top of optical (Layers 0-1). Being from Ciena, it is not surprising that many of Navigator NCS's differentiating capabilities lie in the optical domain – such as Ciena's

Liquid Spectrum analytics – where Ciena has built advanced test and instrumentation capabilities into their own NF hardware– but also support third-party add-on test heads such as OTDRs.

For some time now, MCP (and therefore now Navigator NCS) has been fully integrated with and embedded Blue Planet's "ROA" (Route Optimization and Assurance) capabilities for real-time IP network measurement, visualization, and management. Between the two feature sets, Navigator NCS provides a **multi-layer dynamic topology "map/graph" of the network**, showing the dependencies of IP paths on the optical links, in superimposing service and performance data. It can be thought of as a primitive digital twin on which operations may be performed.

Beyond being multilayer, Ciena emphasizes that they have real **multi-vendor** capabilities, both for IP (which is becoming more common) and for optical NFs (which is less so). To this end, they claim the latest releases of Navigator NCS and MCP have TIP (Telecom Infra Project) Bronze certification for both northbound and southbound APIs. In order to support capabilities that go beyond those standards, or for network functions that do not support those standard interfaces, Navigator NCS provides an open configuration environment to create customized southbound adapters. This is fundamentally format/protocol conversion in a structured environment.

For some time Appledore has been emphasizing that **IP/optical transport is becoming a larger and more important component of mobile networks** -- as speeds increase, as cells become smaller, and as RANs become disaggregated. Ciena, too, focuses on **x-haul** and claims (we did not dig in) that timing distribution for x-haul is, in their opinion, a differentiator for Navigator NCS. For clarity, there are very tight timing requirements on aspects of disaggregated mobile networks, in particular front-haul.

The final claimed unique functionality in Navigator NCS is "**Emulation Cloud**". This is an "as a service" simulation environment that can be used for various functions, some as simple as testing compatibility and interfaces, others more complex -- where actual network configurations and loads are simulated before being deployed. Since an ounce of prevention continues to be worth a pound of cure, this can pay dividends.

Navigator NCS App Library

Navigator NCS also comes with a library of pre-built intelligent applications. Presumably, more will be made available over time, and of course anyone can build an app that utilizes Navigator NCS's APIs.

Figure 2: Ciena Navigator NCS Intelligent App Suite
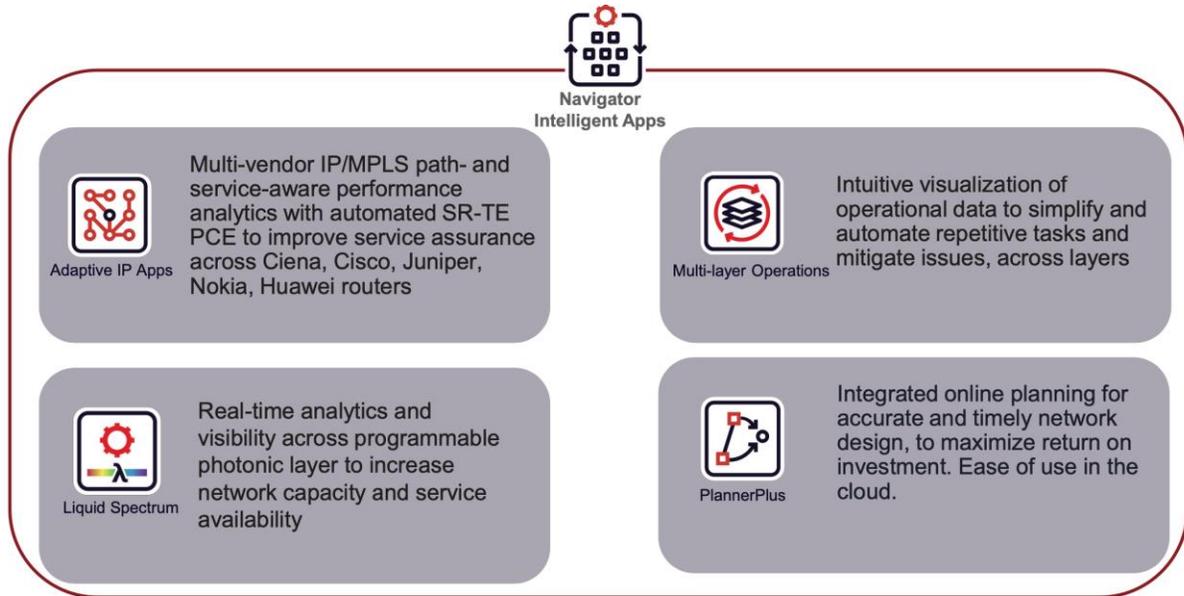
Courtesy: Ciena

The descriptions of these are in the graphic itself, so rather than repeat we will comment on the four:

1. **Performance analytics in the IP domain** utilizes collected data to create a multilayer "light digital twin" that represents the topology and the performance of services across that topology. It is noteworthy that the methods support a multi-vendor view.

2. **Multilayer Operations** provides not only visualization of obstacles but the capability to script remedies and apply them on a large scale—rather than as a large series of one-offs.

3. **Liquid Spectrum** provides visibility across the photonic layers, a Ciena specialty—and takes advantage of a number of built in test and analytical capabilities within Ciena gear in particular. This complements the IP domain analytics, above, for layer 0 and 1—which in many cases could be the root cause of myriad issues.

4. **PlannerPlus** is an online tool to maximize the utilization of scarce and expensive resources. It's worth noting that in this cloud-native "autoscaling" world glass and precision optics remain stubbornly civil engineering issues, therefore prioritizing doing the most with what you already have.

Conclusion – Appledore's Perspective

Appledore believes that autonomic network operation is essential — not just for cost, but to increase agility and flexibility, augment scarce expertise, and improve service up time and the customer experience. **We also believe that autonomics, and in fact all automation, begin within technology domains.** These domains have highly individual characteristics—5G radios & optics have very different terminology topology and technology, and therefore benefit from automation systems built by those technology experts with the particular technology needs in mind. And finally, as we already noted above, "fixed" transport is the heart of networks, not just for what we refer to as fixed and broadband services, but as a growing component of mobile networks, as cells become more numerous and smaller, and therefore x-haul becomes more prolific, and larger.

This is a long build up to "this product category is very important".

This product suite has been one of the market leaders for some time, both in optical and in IP—strengthened by the independent operation of Ciena's Blue Planet division. The name change to Navigator NCS may be only skin deep, but it represents Ciena's vision for automation, thereby making the name change significant.

We believe that the multilayer, multi-vendor, performance data enhanced topology view must be the core of all effective automation in the IP/optical super-domain.

Ciena claims **six key points as differentiators for Navigator NCS, and we agree** that they represent an important set and are representative of the product. These six are:

1. APIs
2. Automation (not merely assist)
3. Multi-vendor
4. Multi-layer
5. Liquid Spectrum
6. A unified system rather than a collection of ad-hoc parts.

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