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# SDN and NFV - Affirmed Networks

## Hunt, Glen

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## MARKET DISRUPTOR PROFILE

## CORPORATE BASICS

- **Founded:** 2010
- **Funding:** Private
- **HQ:** Acton, MA

affirmed®

## PERSPECTIVE

**Analyst Assessment**

Mobile network operators face a challenging future, with ever-increasing network traffic, stiff competition from traditional network operators and over-the-top competitors, and demand for new, more complex services. Affirmed Networks helps operators meet these challenges with its virtualized, cloud-native, microservices-based mobile network solutions that reduce complexity and cost, scale efficiently, and accelerate time-to-market of new services.

Affirmed Networks' mobile solutions include: network slicing, integrated virtual probes, optimized IoT access (NB-IoT/LTE-M/SCEF), virtualized DPI and GiLAN services, integrated service function chaining, and its Service Automation Platform, which addresses critical automation functions. Additional capabilities include: distributed architecture with control and user plane separation (CUPS), WiFi Gateway, and multi-access support (cellular, WiFi, fixed line).

Affirmed Networks began shipping its first carrier-grade virtual EPC solution in 2012. Its pioneering efforts have helped it amass more than 70 customers, including many of the world's largest operators (AT&T, Vodafone, du, SoftBank, Three UK, Telus, Vodafone, Saudi Telecom, and Etisalat), which Affirmed is helping to deliver on emerging 5G and IoT business opportunities as well as provide support for existing 4G/LTE network growth.

**Rating**

GAME-CHANGER

**Challenger:** A new player challenging the status quo of an established industry segment.
**Explorer:** A player exploring market reaction to a new kind of business model.
**Transformer:** A player or ecosystem initiative seeking to expose and exploit an entirely new segment or revenue opportunity.
**Game-Changer:** A highly disruptive new force set to redefine the segment's value chain and status quo.

## Value Proposition and Opportunity

• **5G and Legacy Service Support:** Operators are faced with the challenge of preparing for 5G and IoT services, while continuing to support existing network technologies and services. This requires a scalable future-proof mobile core platform that can both enable new services and improve current operations through automation and reduced time-to-service.

• **Service Automation and Analytics:** Operators need to leverage the power of virtualization and automation across multiple vendor elements to reduce time-to-market for new services and ease staffing and skills requirements while providing full service lifecycle support. Automation, driven by analytics, provides real-time network insights to reduce customer churn, drive smarter network planning/provisioning, and improve the customer experience.

• **Service Agility and Assurance:** Operators must respond quickly to new service demands and opportunities and ensure that the new services meet stringent SLA requirements. Functions such as network slicing, coupled with real-time probes, enable operators to fine tune networks to reduce costs, identify traffic trends, and deliver a high-quality user experience. The performance of the mobile core platform is also critical to support new and existing services at scale.

• **Content and Security Services:** Operators need to deliver new services while ensuring their integrity. A rich set of GiLAN services, service chaining, coupled with analytics helps operators improve network efficiency and support innovative service combinations. Virtualized DPI and GiLAN capabilities enable mobile operators to quickly and easily build new services from a broad library of security, optimization, routing, and other network functions.

## Product/Solution Characteristics

• **5G Mobile Core and vEPC:** Affirmed Networks' Mobile Content Cloud (MCC) provides an end-to-end, fully virtualized mobile core solution that supports 2G, 3G, 4G, and 5G services. 5G trials are ongoing with North America and Middle East operators. Support is offered for 5G New Radio (5G NR), multi-access – WiFi, cellular, fixed line – based on a distributed, cloud-native microservices architecture.

• **Automated Service Lifecycle Management:** Affirmed Service Automation Platform (ASAP) automates the design, configuration, deployment, monitoring, and lifecycle management of services for virtual or legacy network functions. Embedded probes gain real-time insights that can reduce customer churn, generate new service revenue, drive smarter network planning/provisioning, and improve the customer experience.

• **Delivers Assured Services on Demand:** The Affirmed solution includes advanced virtual functions such as network slicing through the Virtual Slice Selection Function (vSSF), enables fine-grained per-user slicing across legacy, virtualized, and multivendor environments for both 4G and 5G networks.

• **Advanced Content and Security Services:** The Affirmed solution supports a set of GiLAN services, service chaining and security services, CGNAT, VPNs, subscriber firewalls, and content filtering. Policy-driven content filtering services deliver 99% accuracy when analyzing dynamic content, protecting subscribers from inappropriate content, and can support unique services and specialized tariffs.

## PRODUCT(S)

• **Affirmed vEPC (Mobile Content Cloud):** Affirmed vEPC provides a complete evolved packet core (EPC) solution that runs on a single, virtual network function (VNF) instance for high performance, scalability, and cost effectiveness. Functions include MME/SGSN, SGW, GGSN/PGW, ePDG, TWAG, CSGN (NB-IoT), SCEF (IoT), PCRF, AAA, and HSS. Affirmed's MCC will align with the next release of ONAP 2.0.
• **Affirmed 5G Mobile Core:** For 5G, MCC supports non-standalone (NSA) new 5G NR. MCC has been

benchmarked at delivering 150G of throughput on a single distributed server, employs a CUPS and cloud-native microservices architecture, and delivers multi-access support.

- **IoT Solutions Suite:** Affirmed's IoT offering provides support for 2G/3G, LTE, LTE-M, and NB-IoT services. Support includes C-SGN, eSCEF, SCS, and an IoT Home Subscriber Server (HSS). Affirmed's IoT solutions support both high-mobility/bandwidth and low-mobility/bandwidth applications.
- **Affirmed Virtual Slice Selection Function (vSSF):** Affirmed's vSSF enables network slicing across legacy, virtualized, and multi-vendor network environments. vSSF supports fine-grained resource selection and provides a 'one-touch' centralized function that transparently inserts into existing networks without requiring configuration changes, making it easy to allocate network slices across any network well ahead of 5G deployments.
- **Affirmed Service Automation Platform (ASAP):** Affirmed's ASAP provides automated configuration management across multi-vendor virtual and physical network elements and network-wide service instances; automates service creation, provisioning, and instantiation of network functions; and supports standard network element interfaces including SOAP, REST, NETCONF/YANG, and CLI. ASAP allows nonprogrammers to create service templates from the existing method of procedures (MOP) and automate execution of them across the entire network. Affirmed's ASAP functionality will also align with ONAP 2.0.
- **Virtual Probe and Analytics (vProbe):** Affirmed's vProbe is integrated with Affirmed VNFs (i.e., MME/SGSN, SGW, PGW, GGSN, WiFi), reducing hardware costs, network complexity, and the performance issues typically associated with legacy probe solutions, while providing real-time network and subscriber analytics.
- **Integrated Service Functions Chaining (Affirmed Workflow):** The company's services chaining framework provides subscriber classification and functions chaining, allowing operators to construct subscriber-specific services in minutes instead of months as is typical in legacy silo architectures.
- **Content and Security Services:** An integrated DPI and GiLAN solution allows mobile operators to create new services from a broad library of security, optimization, routing, and other network functions. Affirmed's solution combines NFV, multiple GiLAN services, service orchestration & automation, and real-time analytics to help operators create, launch, and update services.
- **Virtualized WiFi Gateway:** Affirmed's fully virtualized Trusted WLAN Access Point/Gateway (TWAP/TWAG) and evolved Packet Data Gateway (ePDG) functions enable operators to extend their network's reach and deliver services such as WiFi calling through secure access to trusted and untrusted networks.
- **VNF and Element Management:** The VNF manager allows operators to create, provision, and instantiate virtual functions in place of traditional network appliances, and the MCC provides simplified, centralized provisioning and management of MCC functions and services and is integrated with the OA&M layer to provide visibility and control across the network.

## SUCCESS METRICS

- **Key Partners:** Affirmed's key partners include HPE, VMware, Dell EMC, Juniper, Red Hat, Tech Mahindra , IBM, Coriant, and Wind River.

- **Key Customers:** Affirmed claims over 75 vEPC deployments and 40+ active trials. Affirmed's innovative customers and Tier 1 operators include AT&T, Etisalat, du, Softbank, 3UK, Vodafone, Telus, and STC.

- **Financial Backing:** Affirmed has attracted strong financial backing, garnering $163 million through three rounds of venture funding. Leading strategic firms include: Charles River Ventures, Matrix Partners, Bessemer Venture Partners, KCK Group, Lightspeed Venture Partners, Deutsche Telekom/T-Venture, and Vodafone Ventures.

## COMPETITIVE TARGETS

**Tier 1:** Cisco, Ericsson, Huawei, ZTE, Nokia, Samsung
**Disruptors:** Mavenir, Control Network Dynamics, Casa