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SENSUS

Charting the future of software defined **Networking**

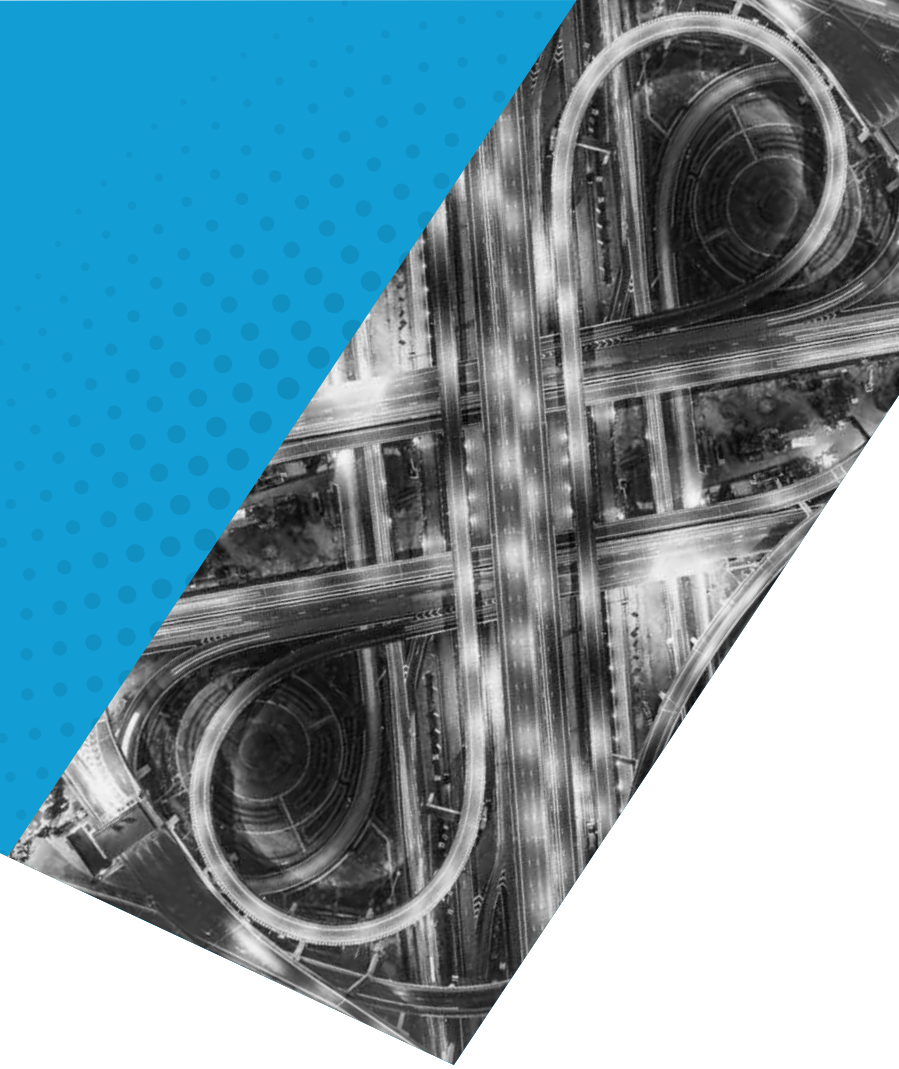
Why
Next-Gen Networks?

The rapid and large scale adoption of new age disruptive digital technologies has resulted in astronomical growth of data. Additionally, experience based, virtual and IoT applications are setting up the network to become high performing, sophisticated and self-aware. Conventional networks can't provide the necessary flexibility for these new age business requirements because of proprietary hardware dependency and manual network deployment. Thus, traditional networks impede overall data center agility. Network Infrastructure solutions, therefore, must go beyond the traditional data center to cope up with the business rising requirements.

The diagram below highlights the impact of digital transformation:

CLOUD	By **2020**, custom built applications distribution: **40%** move into public cloud, **38%** remain on-premises and **22%** move into colocation	**Makes Interconnectivity between clouds and data centers even more important**
BIG DATA AND ANALYTICS	The Digital universe: **44** Trillion GBs by 2020	**Traditional network architectures become oversubscribed, leading to increased latency and congestion issues**
MOBILITY	The 'Bring Your Own Device' (BYOD) initiative -Traffic Surge: **71** Exabytes/month (2022) -Generates its own usage patterns	**Requires a level of application performance that is not supported by traditional network architecture**
IoT	**8.4** Billion working connected things worldwide in 2017 **~20.4** Billion by 2020	**Volume+ Variety+ Velocity of data** **=>immeasurable impact on traditional data center network infrastructure**

Paving the roadmap for SDN 2.0:



Software Defined Networks (SDN) coupled with Network Functional Virtualization (NFV) has been a disruptive formula. Both NFV and SDN deliver agility, flexibility and programmability that align closely with the needs of increasingly critical applications. Despite these remarkable capabilities, SDN has seen limited adoption.

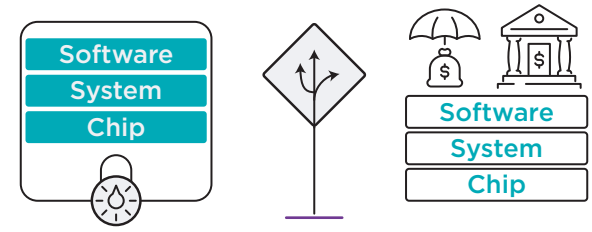
Arguably, some of the major roadblocks are attributed to:

- ARCHITECTURAL COMPLEXITY
- VENDOR RESTRICTIONS
- TROUBLESOME MIGRATION
- CULTURAL OBSTRUCTIONS
- APPLICATION MOBILITY CONSTRAINTS
- MULTI-TENANT ANALYTICS
- DEVOPS COLLABORATION
- STATIC NETWORK MANAGEMENT AND INSIGHTS

The SDN architecture needs to be reengineered to address the following dynamics:

Investment Protection

- Leveraging existing underlay or Greenfield Deployment
- Complexity with Vendor Lock-In



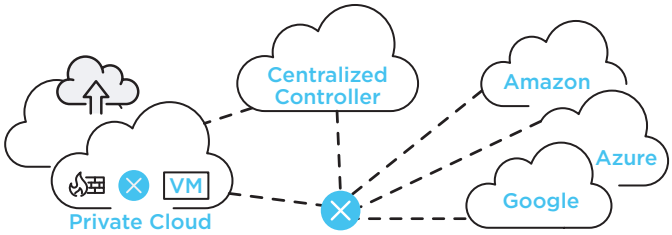
Vendor Specific Hardware
Vendor Specific Software

Green/Grey

Network Abstraction

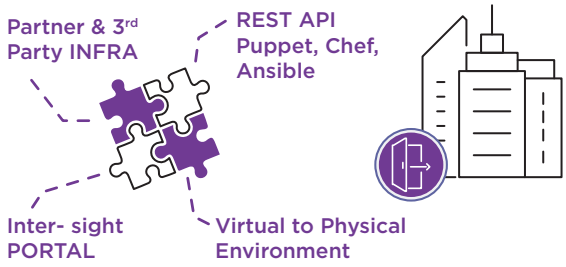
Multi-Cloud Hybrid NW Collaboration

- Application Mapping & Real Time NW – Discovery & Topology View
- Capability & **Roadmap**



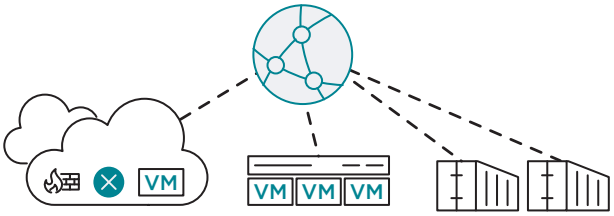
Advanced Integration

- **Multi Tower Strategy (Discrete vs Hyper converged)**
- Multi Tenant; Open API; Traffic Profiling



Migration & Workload Portability

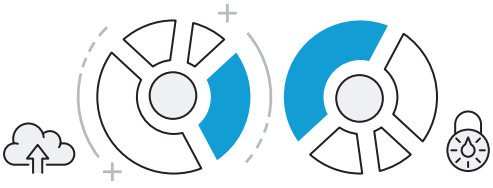
- 'As a Service' levels of Abstraction
- Software Defined Visibility
- Intelligent Traffic Flow



Unified Provisioning – Physical, Virtual, Tenants in Seconds?

Risk Averse and Secure

- Security Groups; Firewalls & NGFWs
- Unified Security Policy
- Security Automation & Compliance

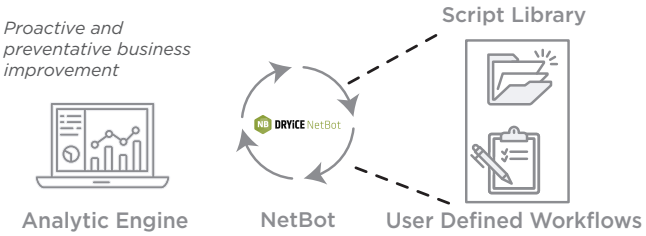


DMZ Anywhere
Micro-segmentation

True Automation & Orchestration

- ML and NLP based automation
- Auto – Optimize, Self Aware

Proactive and preventative business improvement



Analytic Engine

NetBot

User Defined Workflows

What is Sensus?

Sensus is HCL's Software-Defined Network (SDN) framework that covers end-to-end transformation of data center's network infrastructure.

It takes into consideration a broad range of engineering and architecture parameters in defining the right SDN strategy. The framework takes a holistic view of the network environment considering transformational benefits of software based control and API-driven agility. It integrates programmability to network infrastructure so as to make it virtualized, automated and readily adaptable to changing workload needs and hybrid ecosystem. It uses a vendor-neutral approach to stitch the right solution forming a seamless fit for the overall multi tower strategy.

SENSUS enhances network agility, security and operational efficiency

Some of its key business and IT benefits include:

Greater Network Agility

Network programmability and virtualization dynamically adjust the network-wide traffic flow based on workload demands

Hybrid Interconnect

On-Demand and highly reliable interconnect between on-premises and multi-cloud DC setup, that facilitates seamless application mobility, workload portability, and hybrid network consolidation

Improved Operational Efficiency

Single plane of glass for all change management and policy needs, including automated provisioning, configuration and control

Real Time Topology Mapping

Dynamic mapping of application and network infrastructure, flows, and dependencies across physical, virtual and cloud based infrastructure

Faster Time-to-Market

Quick design and deployment of applications through network virtualization and policy based automation

Improved Security

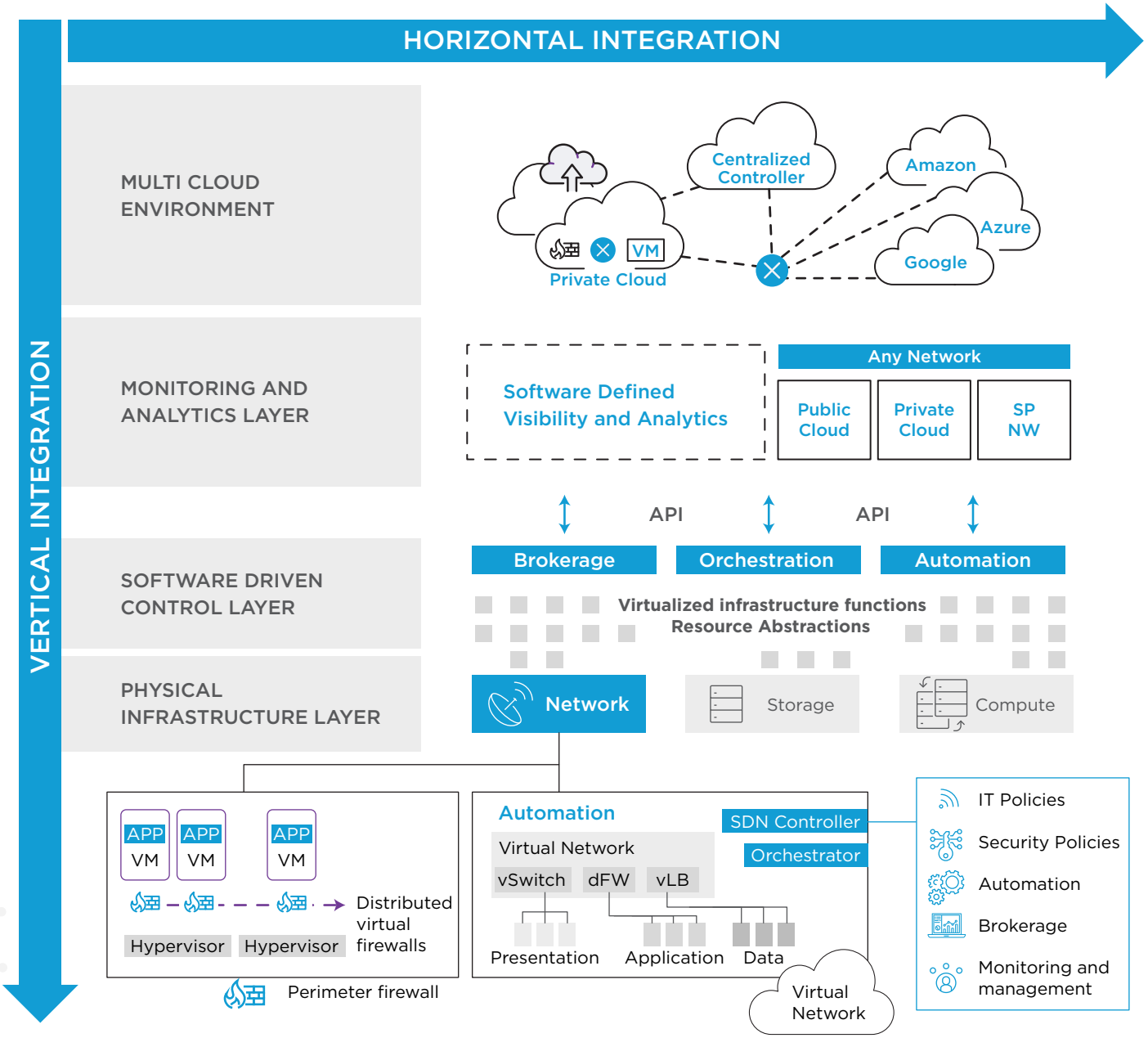
Unprecedented security for applications and network endpoints through Micro-segmentation and Zero-Trust-based Security model

Pervasive Visibility and Analytics

Real time monitoring and analytics for the entire network infrastructure through machine learning and behaviour analysis based techniques

Platform and Vendor Agnostic

Vendor-neutral approach allows seamless integration with third party and complimenting tools through an Open API architecture



VERTICAL INTEGRATION

- Mapping and Integration of Applications; Align network functions instantly to match application requirements
- Hardware independence of Virtual Network Functions
- Automatic Deployment; Deploy workloads and network functions together
- Hybrid Interconnect; Enabling application mobility and workload portability
- Elasticity and lifecycle management

HORIZONTAL INTEGRATION

- Fully Programmable; Creating agility for rapid app innovation
- Orchestration of physical and virtual networks with systems and storage
- Network functions chaining and Bimodal support
- Centralized management and monitoring
- Improving visibility and governance

Success Stories

Reimagining Data Center Network For A Leading Manufacturing Firm

A leading European manufacturing company struggled with restrained business scalability and agility due to huge obsolescent legacy network infrastructure. With a multitude of other challenges, costs, time and errors increased while overall productivity and operational efficiency suffered.

HCL Sensus reduced **CAPEX and OPEX by 30%** and introduced scalable multi-tenancy with greater network agility.

For more details, download the case study by clicking **here.**

Enabling Business Agility Through Data Center Network Overhaul

A leading medical MNC was challenged by a massive fragmented physical infrastructure with outmoded legacy systems, vendor lock-ins, poor network visibility, error prone and time and effort consuming configuration and change management activities.

Our solution, **Sensus**, led to increased network agility, faster GTM, reduced capex, and improved efficiency, network monitoring and troubleshooting.

For more details, please download the case study by clicking **here.**

For more information or any queries about how HCL's Infrastructure Management Services can help you simplify IT complexity and support your business' digital initiatives

please contact us at ***Contact.NGN@hcl.com***

HCL

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HCL offers its services and products through three lines of business - IT and Business Services (ITBS), Engineering and R&D Services (ERS), and Products & Platforms (P&P). ITBS enables global enterprises to transform their businesses through offerings in areas of Applications, Infrastructure, Digital Process Operations, and next generation digital transformation solutions. ERS offers engineering services and solutions in all aspects of product development and platform engineering while under P&P. HCL provides modernized software products to global clients for their technology and industry specific requirements. Through its cutting-edge co-innovation labs, global delivery capabilities, and broad global network, HCL delivers holistic services in various industry verticals, categorized under Financial Services, Manufacturing, Technology & Services, Telecom & Media, Retail & CPG, Life Sciences, and Healthcare and Public Services.

As a leading global technology company, HCL takes pride in its diversity, social responsibility, sustainability, and education initiatives. As of 12 months ending on March 31, 2021, HCL has a consolidated revenue of US$ 10.17 billion and its 168,977 ideapreneurs operate out of 50 countries. For more information, visit www.hcltech.com

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