Services Catalog

Veryx Testing Services

Achieving faster time to market through
innovative hybrid services
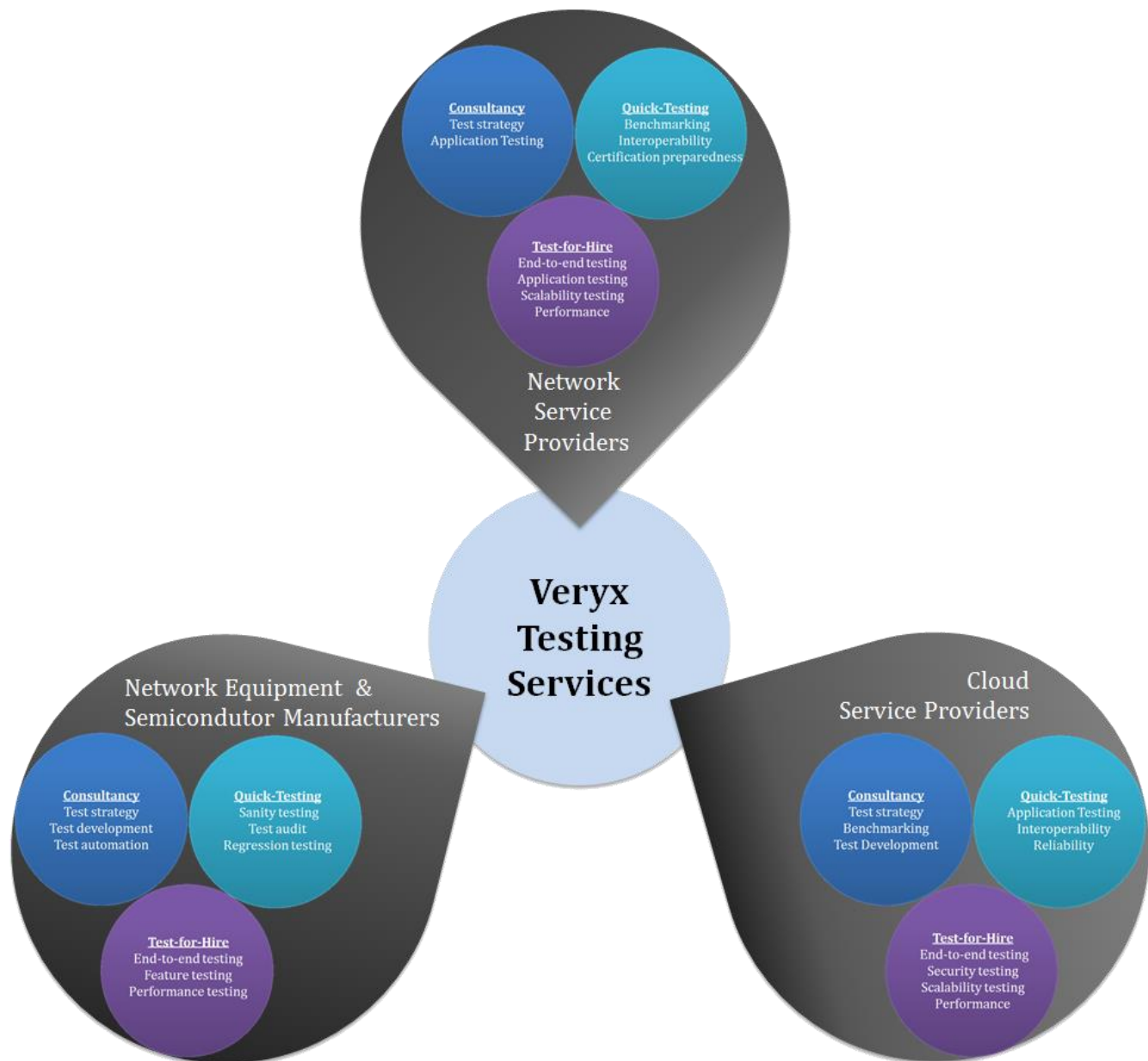
Testing services for

Broadband Access	**Carrier Ethernet**	**Enterprise**	
Industrial	**IPv6**	**Mobile Backhaul**	
Network Security	**SDN & Virtualization**	**Time Synch.**	

Veryx Technologies is a provider of innovative testing solutions, enabling companies to significantly reduce their testing related investments, while simultaneously enhancing the efficiency of testing and product quality. Having performed independent verification for a variety of networking devices over the years, Veryx has progressively expanded its testing services expertise to cover emerging technologies for devices and networks in **Broadband Access, Carrier Ethernet, Enterprise (including BYOD), Industrial networking, IPv6, Mobile backhaul, Network security, SDN & Virtualization and Timing & Synchronization.**

Veryx Testing Services brings together all the benefits of its 25,000+ strong test case library built on the ATTEST test automation framework, along with the test expertise and knowledge of its engineering team in a proven, distance and time-insensitive manner. Veryx Testing Services results in immediate time-to-market benefits to customers, by enabling them to deliver well-tested products in a timely manner, delivering better ROI.

Veryx Testing Services for Network Service Providers

The Challenge

With increasing market demand for converged services involving adoption of Software Defined Networking (SDN) and Network Functions Virtualization (NFV) in areas such as Carrier Ethernet, IP/MPLS and Wireless, Network Service Providers face challenges in verifying new devices and technologies that are to be deployed in their networks and in testing applications that require the enhanced capabilities of the new networks.

Testing is a specialized, time consuming, resource dependent activity, which needs to be performed by an independent group with strong technology strengths.

The Solution

Utilizing a hybrid-services model, Veryx brings its considerable test expertise and knowledge to complete the testing accurately, exhaustively and on-time, ensuring that any possible lack of conformance, functionality, Interoperability, reliability and performance is properly highlighted with possible remedial solutions.

Veryx Test Services are offered using high levels of automation and expertise, customized to specific requirements.

Customer Benefits

INDEPENDENT verification of network and service capabilities

QUICKER completion of testing due to higher level of automation

FLEXIBILITY in testing models and processes catering to short and long term engagements

Test EXPERTISE tuned to effective implementation of test strategies

Test-for-Hire

Service providers need to assess the capabilities of their network before offering services to their customers. Veryx supports the validation of the network's capabilities using its library of tests. Thus service providers can be confident of their network's capabilities before rolling out their services.

Veryx offers the following types of testing:

- **End-to-end testing**
- **Application testing**
- **Scalability testing**
- **Performance testing**

Quick-Testing

Fast turnaround times are required for "single cycle" test verification requirements, such as in benchmarking equipment of different vendors or in assessing the preparedness for MEF certification. By utilizing its ready-to-use library of test cases and test infrastructure, Veryx is able to provide service providers quick results with the added advantage of independent third-party verification for the following:

- **Benchmarking**
- **Interoperability**
- **Certification preparedness**

Test consultancy

Veryx's expertise in developing efficient test solutions is extended to service providers who need to develop testing strategies and plans to perform pre-deployment verification of their networks:

- **Test strategy definition**
- **Application testing**

Example Services for Network Service Providers

Broadband Access

Type	Test coverage
End to end testing	Functionality, Performance, Time Synchronization, Interop Testing of DSLAM, L2 Aggregation Switch, Broadband Network Gateway, Core Router
Application testing	Internet , VOIP, IPTV services etc.
Scalability	Testing for (PPPoX sessions, Multicast Groups, MAC, Routing & Label entries, FECs VRFs, etc.)
Performance	Throughput, latency, route convergence, max. addresses, Provisioning time etc.
Benchmarking	Benchmarking across DSLAM / Aggregation Switch / Broadband Network Gateway / Core Router etc.
Interoperability	Interop between DSL Modem /DSLAM /Aggregation Switch / Broadband Network Gateway and Core Router

Carrier Ethernet

Type	Test coverage
End to end testing	Functionality, Conformance, Performance, Time Synchronization, Interop Testing of L2/L3 Aggregation Switches, Edge Routers, Customer Premise Equipment, Core Router
Application testing	Voice, Video, Data and Mobile Services
Scalability	Testing for (MPLS sessions, Multicast Groups, MAC, Routing & Label entries, FECs VRFs, etc.)
Performance	Throughput, Packet-loss, Jitter, Delay, Delay Variation, route convergence, max. addresses, Switch-over time etc.
Benchmarking	Benchmarking across L2/L3 Aggregation Switches, Edge Routers, Customer Premise Equipment, Core Router etc.
Interoperability	Interop between L2/L3 Aggregation Switches, Edge Routers, Customer Premise Equipment, Core Router etc.

Veryx Testing Services for Cloud Service Providers

The Challenge

With the evolution of device mobility and shift towards Cloud Paradigm, Virtualization and SDN are among the trends driving the next generation of network. Cloud Service Providers are facing challenges in verifying their next generation of networks meet the demand of dynamic business needs and in testing the applications that require the enhanced capabilities of the new networks.

Testing is a specialized, time consuming, resource dependent activity, which needs to be performed by an independent group with strong technology strengths.

The Solution

Utilizing a hybrid-services model, Veryx brings its considerable test expertise and knowledge to complete the testing accurately, exhaustively and on-time, ensuring that any possible lack of functionality, Interoperability, reliability, performance and security is properly highlighted with possible remedial solutions.

Veryx Test Services are offered using high levels of automation and expertise, customized to specific requirements.

Customer Benefits

INDEPENDENT verification of network and service capabilities

FLEXIBILITY in testing models and processes catering to short and long term engagements

Test EXPERTISE tuned to effective implementation of test strategies

Test-for-Hire

Cloud Service providers need to assess the capabilities of their network before offering services to their customers. Veryx supports the validation of the network's capabilities using its library of tests. Thus service providers can be confident of their network's capabilities before rolling out their services.

Veryx offers the following types of testing:

- **End-to-end testing**
- **Scalability testing**
- **Security testing**
- **Performance testing**
- **QoS testing**

Quick-Testing

Fast turnaround times are required for "single cycle" test verification requirements, such as in benchmarking products and solutions of different vendors. By utilizing its ready-to-use library of test cases and test infrastructure, Veryx is able to provide cloud service providers quick results with the added advantage of independent third-party verification for the following:

- **Application testing**
- **Interoperability**
- **High Availability/ Reliability**

Test consultancy

Veryx's expertise in developing efficient test solutions is extended to cloud service providers who need to develop testing strategies and plans to perform pre-deployment verification of their networks:

- **Test strategy definition**
- **Test development**
- **Benchmarking Solution**

Example Services for Cloud Service Providers

Network as a Service (NaaS)

Type	Test coverage
End to end testing	Testing for functionalities including dynamic virtual network provisioning, tenant onboarding and self-provisioning, network visibility and monitoring, support for middleware components etc.
Application testing	Orchestration Apps (Network and Cloud Management), Network Services, Security etc.
Scalability	Testing for (Service scalability, Virtual Network scalability etc.)
Performance	Throughput, Latency, Jitter, Delay, Delay Variation for network and individual tenants
QoS testing	Class of service support requirements verification.
High Availability/ Reliability	Testing for redundancy, service high availability, failover switching, fast network re-convergence etc.
Interoperability	Interop between L2/L3 Aggregation Switches, Edge Routers, Core Router, Servers, Storage and multiple infrastructure service providers etc.
Security	Testing for Tenant isolation, VPN support, network and customer access control policies etc.

Veryx Test Services for Network Equipment and Semiconductor Manufacturers

The Challenge

Testing is a time consuming, highly resource dependent activity, with the requirement of a high knowledge level within the testing team.

Testing also tends to absorb all the accumulated delays of the development process, being scheduled before the product is released – thus becoming a high stress activity, leading to a lot of compomises and last-minute software patches.

The Solution

Utilizing a hybrid-services model, the Veryx brings its considerable test expertise and knowledge to complete the testing accurately, exhaustively and on-time, ensuring that possible lack of conformance, functionality, interoperability and performance is properly highlighted with possible remedial solutions.

Veryx Test Services are offered using high levels of automation and expertise, customized to specific requirements.

Customer Benefits

CHOICE of extensive **LIBRARY** of test cases with high levels of automation

FLEXIBILITY in testing **MODELS** and processes catering to short and long term engagements

TEST EXPERTISE tuned to effective interaction with customer development & SQA teams

TESTING SET-UPS geared to mirror customer environments

IN-DEPTH visibility into test progress and schedule control

REDUCTION in testing cost

Test-for-Hire

Customers enhance their SQA team's capabilities by leveraging the established Veryx ATTEST test infrastructure, ready-to-use exhaustive library of tests, well-equipped test lab and an expert testing team. Test-for-hire enables better management of the testing lifecycle of products on an ongoing basis, while delivering greater ROI and flexibility, without compromising on quality. The types of services offered in this model include:

- **End-to-end testing**
- **Feature testing**
- **Performance testing**
- **Interoperability testing**

Quick-Testing

Often customers need fast turnaround times for single cycle verification requirements. By utilizing Veryx's ready-to-use library of test cases, customers are assured of quick results at lower budgets. Testing activities that are performed in this model are:

- **Sanity testing**
- **Test audit**
- **Regression testing**

Test consultancy

Veryx offers customers its testing expertise to enable them identify test strategies and plans for a variety of device types and test types.

Veryx offers to enhance existing test cases to address new test requirements, increase test coverage and take up the responsibility of testing and maintaining customer baseline(s) on a turnkey basis. Veryx can also help integrate third party products or build custom automation. Activities performed include:

- **Test strategy definition**
- **Test development**
- **Test automation**

Example Services for Network Equipment and Semiconductor Manufacturers

Enterprise switches

Type	Test Coverage
End to end testing	Functionality, Performance, Interop Testing of L2/ L3 and Security devices
Feature testing	Features of L2/ L3 devices, Security Devices
Performance	Throughput, latency, route convergence, max. addresses, etc.
Interoperability	Interop Testing with third-party products
Sanity Testing	Conformance /Functional Testing of L2/L3 and Security devices

Access Devices

Type	Test Coverage
End to end testing	Functionality, Conformance, Performance, Interop Testing of Internet Access Devices, L2/L3 Aggregation Switches, Edge Routers, Core Router, xDSL Modems, OLT/ONU, etc.
Application testing	Internet Access, IPTV, Video on Demand, etc.
Scalability	Testing for User sessions, Multicast Groups, MAC, Routing & Label entries, FECs, VRFs, etc.
Performance	Throughput, Packet-loss, Jitter, Delay, Delay Variation, route convergence, max. addresses, Channel Zap rates etc.
Benchmarking	Benchmarking across Internet Access Devices, L2/L3 Aggregation Switches, Edge Routers, Core Router, xDSL Modems, OLT/ONU, etc.
Interoperability	Interop between Internet Access Devices, L2/L3 Aggregation Switches, Edge Routers, Core Router, xDSL Modems, OLT/ONU, etc.

Wireless LAN Devices

Type	Test Coverage
End to end testing	Functionality, Performance, WLAN devices
Feature testing	Features like switching, Security, VPN, System, Network Management, etc.
Performance	Throughput, latency, Association/Disassociation rate, max. addresses, etc.
Interoperability	Interop Testing with third-party products
Sanity Testing	Conformance /Functional Testing of WLAN devices

Data Center switches for SDN and Virtualization support

Type	Test Coverage
SDN Functionality	ONF's OpenFlow Functionality – Flow insertion and modification, Packet modification, Statistics collection etc. and IETF's IRS Functionality – Route insertion and modification
Traffic Isolation	Tenant Isolation and Address Re-usability using Endpoint Virtualization Technologies such as VxLAN, NVGRE etc. for East – West and North – South Traffic
VM Migration	Session Continuity with Network State Update and Quality of Experience (QoE) measurement during VM Live migration
Performance Guarantee	Throughput and Latency measurement for Client to Server, Server – Server and Server - Storage Traffic with/without VM migration
High Availability	Load Balancing, Recovery, Convergence, Robustness and Redundancy Support based on M-LAG, SPB, TRILL etc.
Quality of Service	QoS per Application , per Tenant and per traffic type (Server/Storage) and QoS based on Access Control Policies
Scalability	Max No. of Virtual Network, Max. Tenants per Virtual Network, Max MAC Address Table size and Max. ARP Cache Table Size
Auto Provisioning	Auto Provisioning based on 802.1Qbg , Network Policy Update using Orchestration software during VM Migration
Security	AAA, Access Control Policy (ACLs), Port Security, DoS, MAC based authentication and Storm Control Support

About Veryx Technologies

Veryx Technologies (www.veryxtech.com) is an innovative enterprise providing solutions that enhance product quality and testing efficiency. Veryx offers flexible, cost-effective SAMTEST range of products that enhance the Service Assurance and diagnostic capabilities of Ethernet Service Providers. Leading equipment vendors, rely on the ATTEST range of products for testing applications in Access, Carrier Ethernet, Data Center, Edge, Enterprise, Industrial Networking and Security domains for over a decade. The unique offerings from Veryx enable customers to reduce the "time-required-to-test" and enhance their "time-to-market"

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