Automated Network Survey and Interception of Leased Line Services

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NetQuest Corporation

Mount Laurel, New Jersey

Agenda

- NetQuest Introduction
- The Problem
- The Costs
- The Solution
- The Savings

Company Background

- Founded in 1987; Privately-held New Jersey, USA Corporation
- Technology and Solutions for Access & Monitoring solutions for legacy & IP-based networks
- Focus on wire-speed, broadband IP communications applications
- Global customer-base; many longer than 10 years
- Business models for:
  - System Level Network Appliance Products
  - COTS Network Interface Card adapters NIC's
  - OEM & Strategic Alliance
- "Unique Problem Solving Technology" include:
    - Automatic Network Discovering Interceptor
    - POS to GigE & POS to 10GigE Wire-speed Translation Systems
    - ATM, TDM POS and Ethernet NIC Adapters
- Broad expertise in ultra high-speed hardware and software design
- Responsive customer-first philosophy for over 20 years

Target Markets

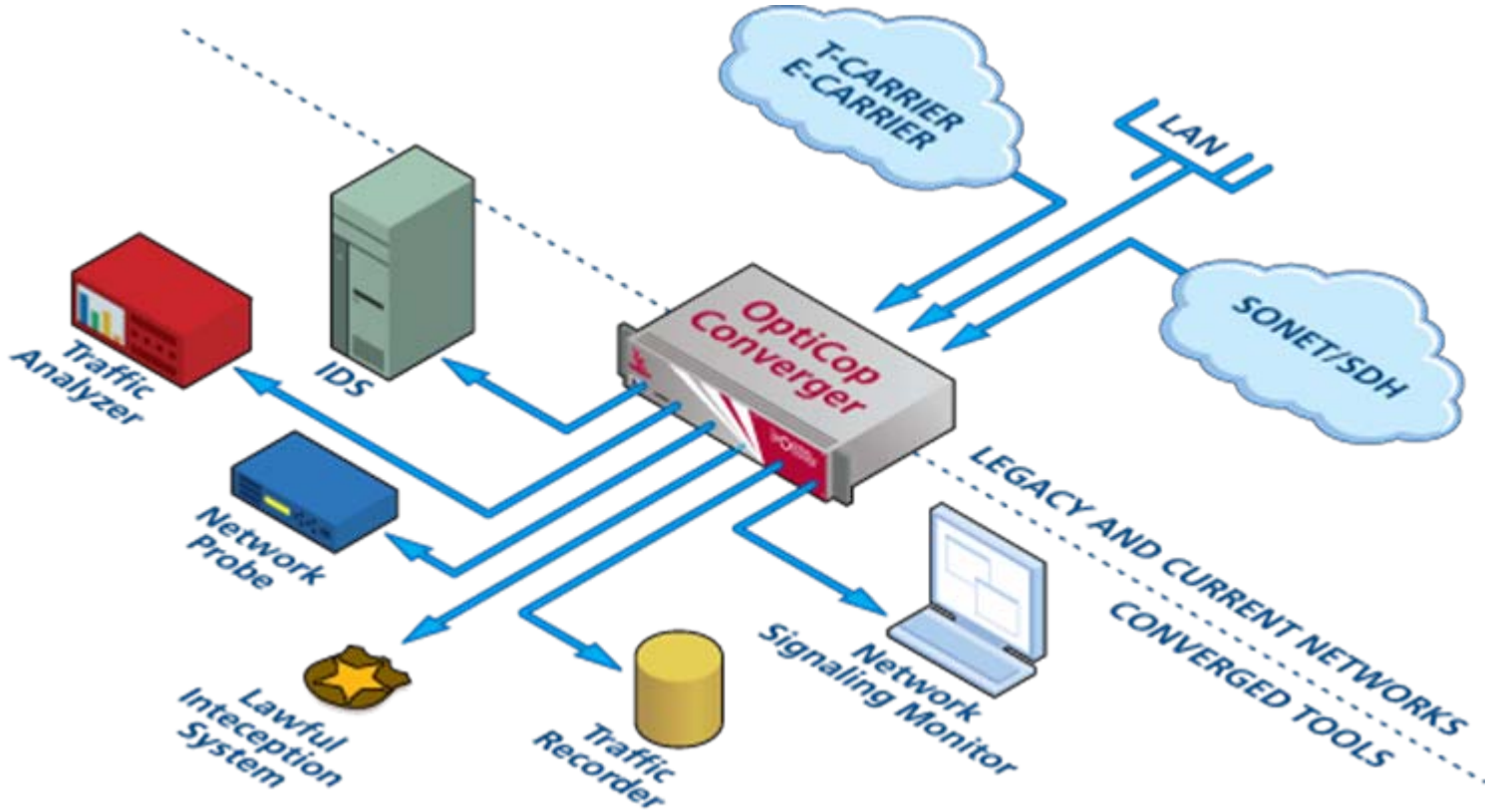
- Law Enforcement Agencies
- National Intelligence/Security Agencies
- Agencies
- Civilian Government Agencies
- Communications Service Providers

Interception Market Dynamics

- Public and National Security are a priority everywhere.
- Surveillance or Monitoring of network traffic continues to be complicated by multi-protocol high speed networks.
- TDM Networks (SONET/SDH) remain primary transport ...even for IP
  - Deeply Channelized interfaces and documentation regarding bandwidth allocation are spotty
  - Recent advances enable Ethernet transport on existing networks.
- Legacy Protocols like ATM, Frame and SS7 will remain in the network for many years.
- Desire to make interception investments in IP centric solutions are understandable...yet not practical.

What NetQuest Provides

- Access to optical and copper broadband networks



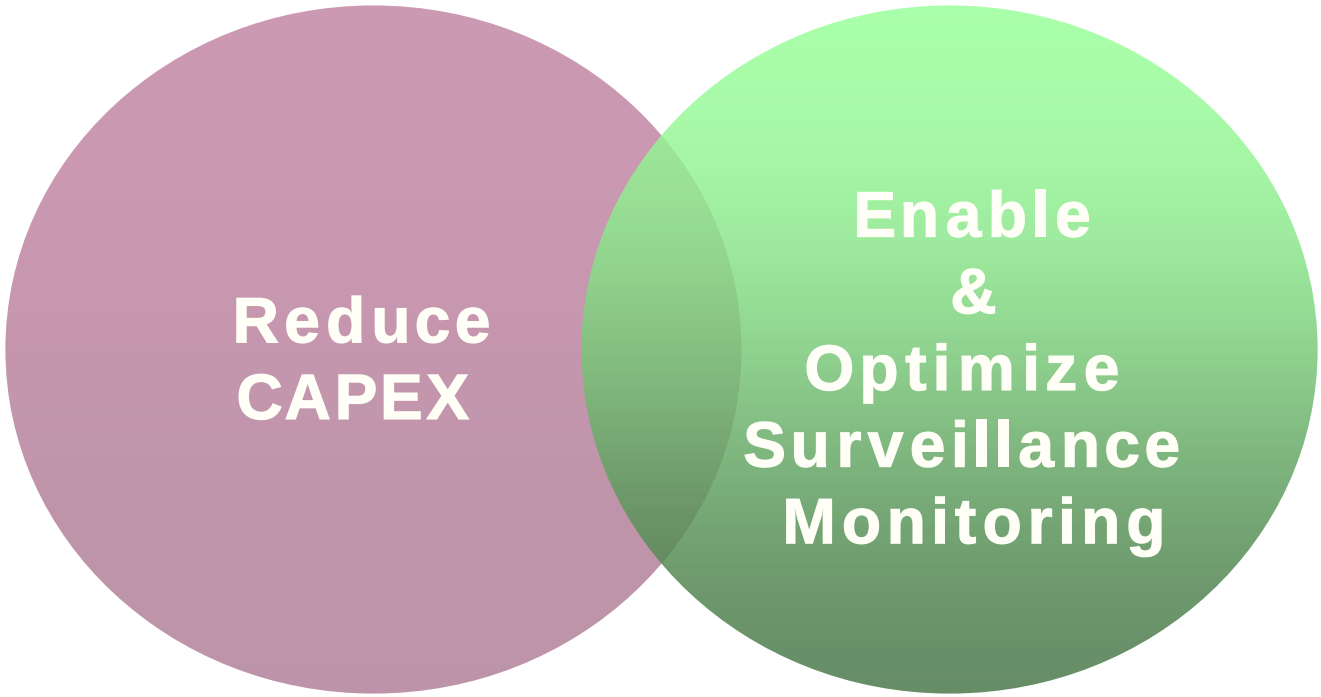
Our Mission…

To empower our customers with the ability to correlate converged network traffic into service, customer or target oriented flows without distortion.

“It all depends on how we look at things, and not how they are in themselves.”

Carl Gustav Jung

Interceptor Value Proposition



Intercepting Leased Line Services Overview

The **NetQuest**

OptiCop Interceptor™

NetQuest Corporation

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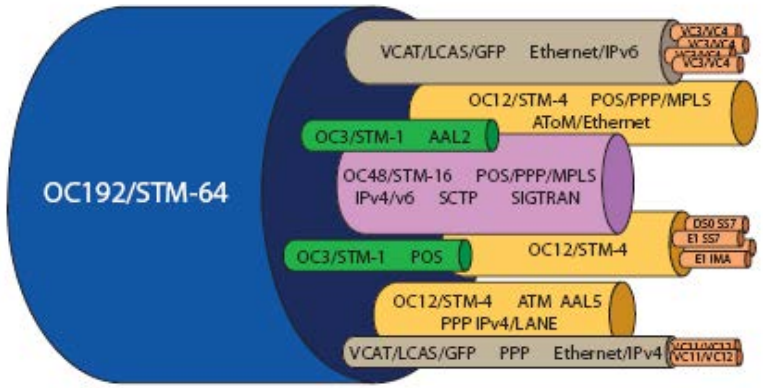
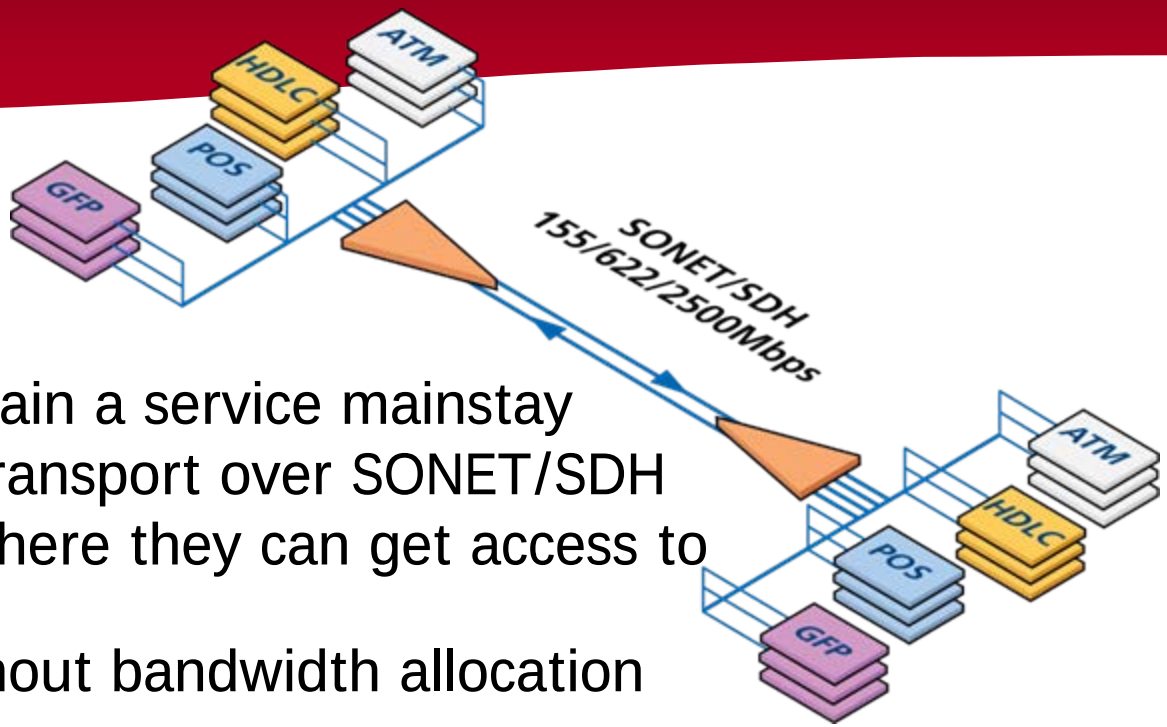
What are Leased Line Services

- Typically point-to-point and Point-to-multipoint circuits.
  - Often referred to as International Private Line Circuits (IPLC)
- Bandwidth Pipes
  - T1/E1 and Fractional services
  - T3/E3
  - SONET and SDH
  - Ethernet



- Support for any protocol
- Considered by many as the most secure

The Problem

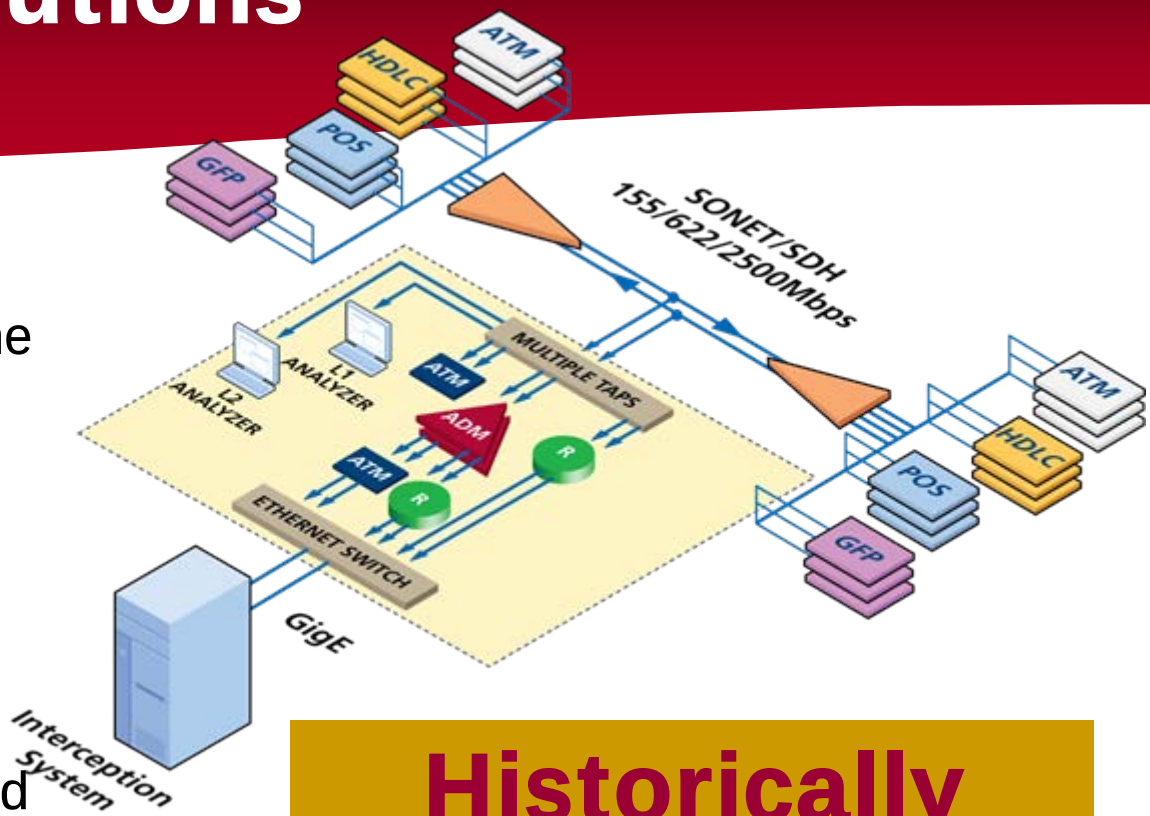


- Private Line Services remain a service mainstay
- Dynamic multi-protocol transport over SONET/SDH
- Agencies are limited in where they can get access to circuits.
- Circuit access comes without bandwidth allocation documentation.
- End to End bandwidth allocation can change
- Customer Premise Equipment can be re-configured without notification.
- Additional protocol support can be changed at CPE level

Traditional Solutions

- A collection of equipment is required to gain access to the multitude of services being carried.
  - TAP's
  - ADM's
  - Routers
  - ATM Multiplexers
  - L1/2 Test Equipment
- Configurations that may need adjustment if end users change their provisioning.
- Platforms are underutilized since they are being used in Half Duplex applications

A better solution is needed!!!



Historically Access is Complicated and Expensive

The Capital Equipment Costs

Equipment	Estimated Cost	Qty.	Ext. Cost	Notes
Taps	$1,200	2	$2,000	
Add Drop Mux	$25,000	2	$50,000	With GFP/VCAT
ATM Mux	$20,000	2	$40,000	Could be blades
Router	$15,000	2	$30,000	
Layer1 tester	$20,000	1	$20,000	Test 1 link at a time
Layer 2/3/4	$75,000	1	$75,000	Protocol discovery

Estimated Total CAPEX	$217,000

The Operational Costs

Line Item	Estimated Cost	Qty.	Ext. Cost	Notes
Rack Space	$Varies	1	$2,000	2 RU's vs. 2 Racks
Service Agreements	18% of cost		$39,000	18% of $217,000
Technician	$100,000	.5	$50,000	Interval dependent

Estimate Total Annual OPEX
Year 1 $91,000
Year 2 $91,000
Year 3 $91,000
Plus the Equipment Acquisition Cost of $217,000

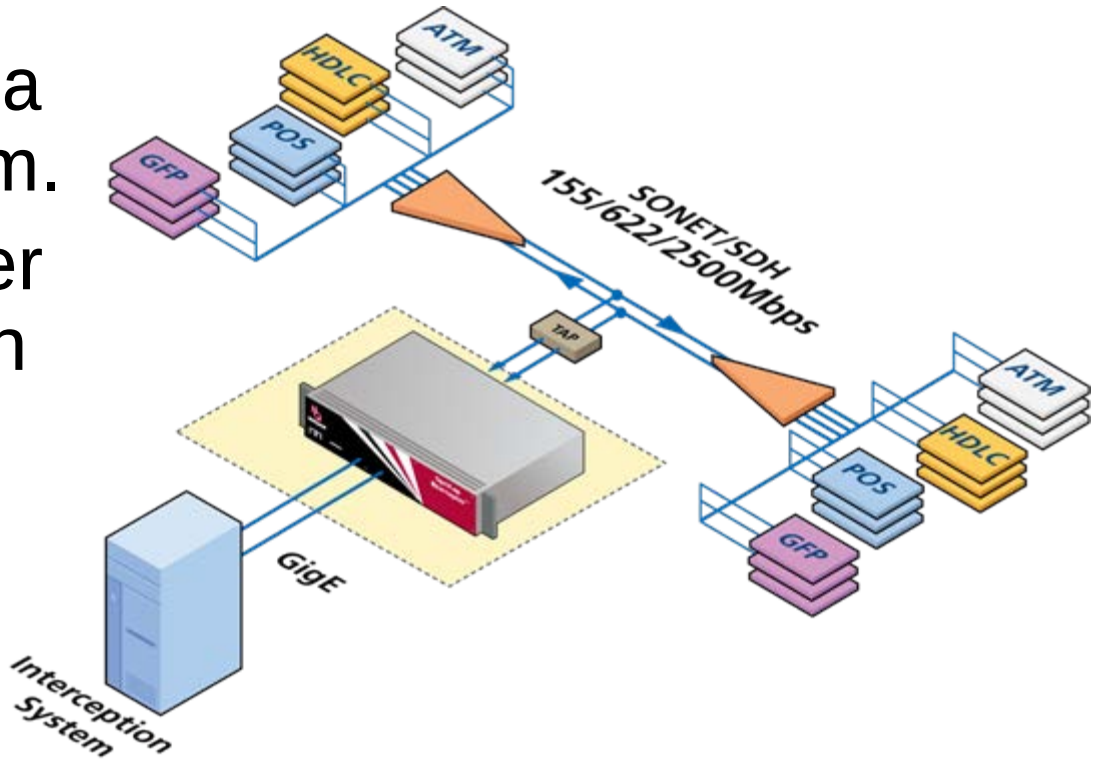
The 3 Year Cost for 1 FDX Circuit $490,000

The Ultimate Cost

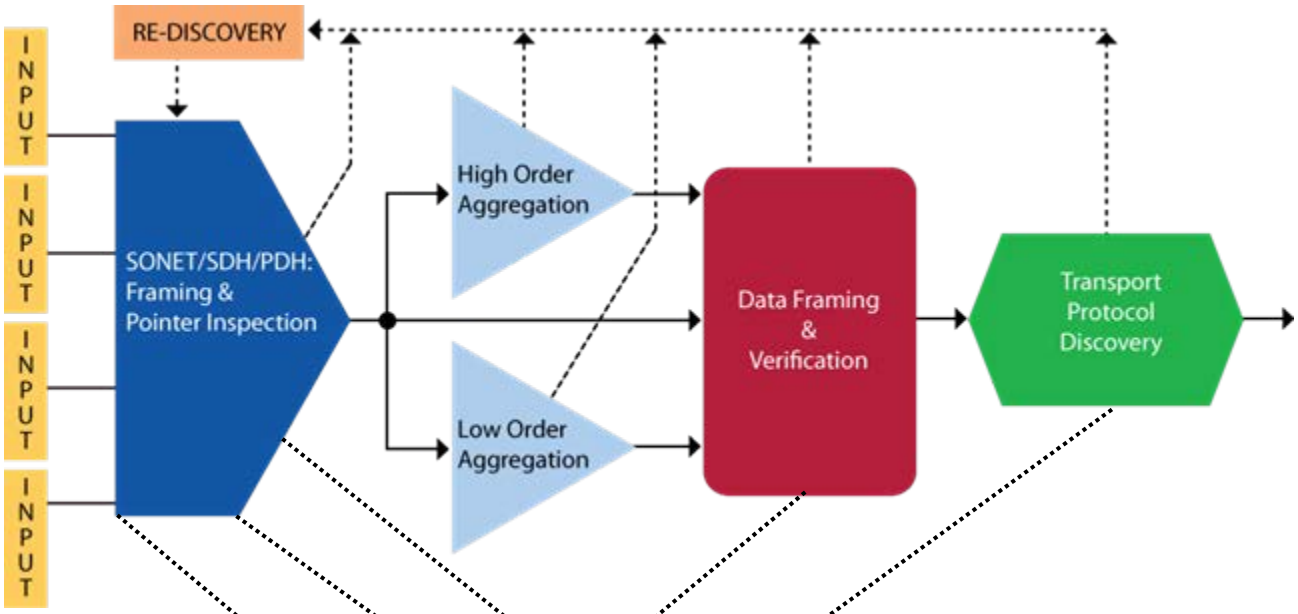
- Missed Surveillance is Pricele$$
  - Many solutions do not notify agencies of circuit provisioning changes
  - Manual scans (survey) are subject to error
  - Un-Filtered data can over-run probes and storage solutions
  - Budgets are Budgets

The Solution

- Consolidate multiple network elements in a purpose built platform.
- Automatically discover Layer 1/2/3 allocation and protocol content
- Provide unified IP access to intercept system
- Scalable ports and bandwidth



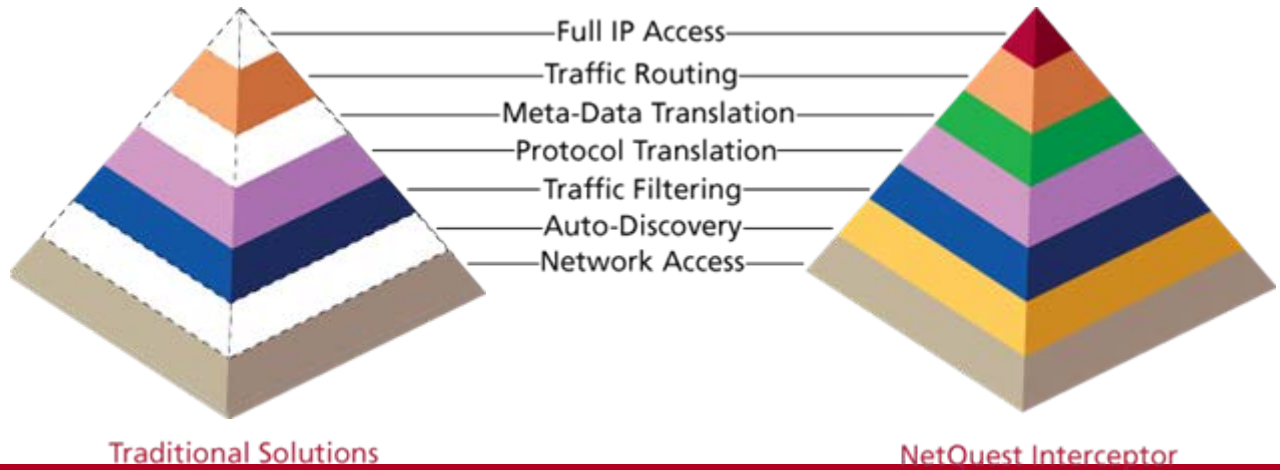
The Auto Discovery Process



Stream Index	Stream Type	Data Framing	Transport Protcol	GigE Port Output Forwarding	Bypass Port Forwarding
0-1-2...	OC12c	POS	MPLS	1	-
0-1-4...	DS3	HDLC	PPP	3	-
0-0-3...	OC3c	ATM	IP-MUX (AAL5)	2	-
0-0-..3-1	E1	N/A	N/A	-	1
0...4-0	DS0	HDLC	FR	3	-
0-1-4...	OC3c	GFP	MAC	-	2

Unified IP Access

- If everything was IP we could:
  - Sit on top of the stack and monitor everything
  - Eliminate test and multiplexing gear
  - Forget the legacy protocols
  - Make investments in where we are going



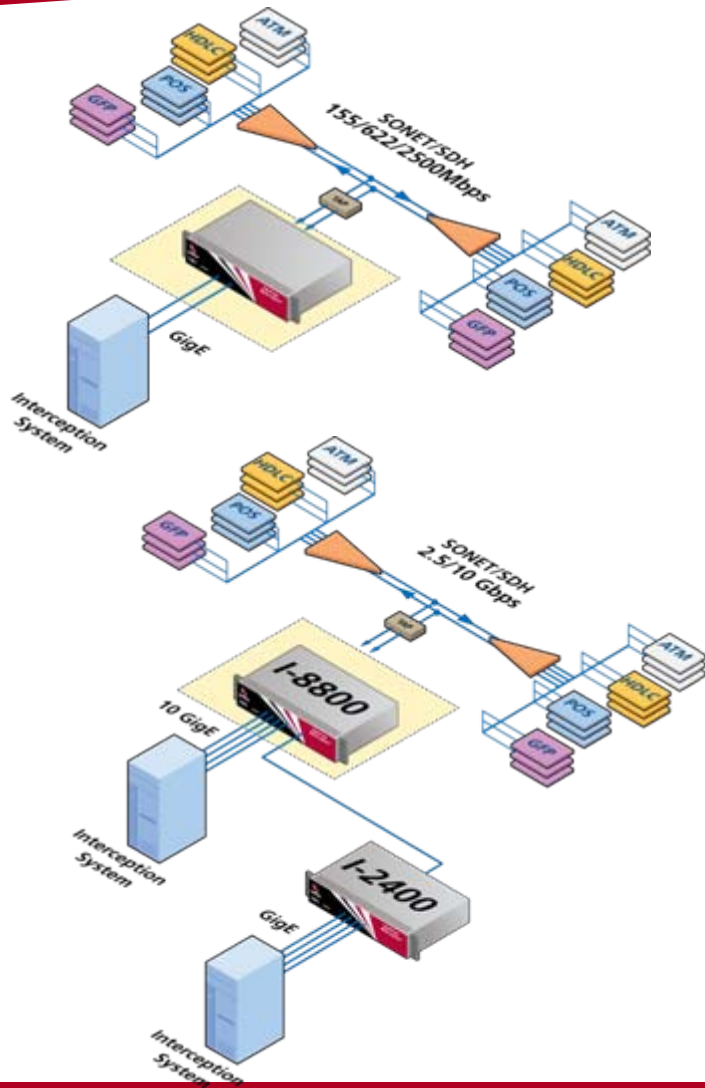
The Interceptor Portfolio

Interceptor Type Interceptor Function		
SONET/SDH Inputs with Optional APS	2 x OC192/STM-64 or 4+4 or 8 x OC48/STM-16	1 x OC48/STM-16 or 4 x OC3/12 or STM-1/4
Auto-Discovery and Filtering Bandwidth	20 Gbps	2.5 Gbps
Ethernet Output	4 x 10GigE	4 x GigE
TDM Streams Auto-Discovery	From OC192/STM-64 to VC4/VC3, PDH, GFP/VCAT/LCAS	From OC48/STM-16 to VC4/VC3, PDH from VC4/VC3 to VC12/VC11 and DS0, GFP/VCAT/LCAS
Framed Streams Auto-Discovery and Filtering	POS, ATM* 128 streams	POS, ATM, HDLC 500 streams
Protocol Streams Auto-discovery and Filtering	PPP, cHDLC, MPLS	PPP, cHDLC, MPLS, Frame Relay, SS7, MLPPP
Higher Level Stream Auto-Discovery and Filtering	N/A	Virtual Connections, Tunnels, IP Streams Application Streams

* Denotes Auto discovery support only

Portfolio Deployment details

- The products can be deployed as stand alone devices with direct connections to probes.
- They may also be used in conjunction with each other the solve deeply channelized high speed circuits.
  - Higher speed containers of IP are directed to probes on 10GigE of I-4400/8800 platforms
  - Lower speed containers and PDH are cascaded to I-2400 platforms for deep channel processing



Summary

- Automatic SDH/SONET L1/L2 discovery and monitoring
- Eliminate multiple network elements and rack space they occupy
- Protocol translation (Unified IP Access!!!)
- Preserve Probe processing capacity for high value functions.
- Ensures target data is continually monitored.
- Dramatically reduce CAPEX and OPEX while increasing the surveillance effectiveness. .

Thank you

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