The Good, The Bad & The Ugly

Lessons Learned from 50+ Network Evaluations

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BROADBAND SUCCESS PARTNERS

Leading broadband consulting firm focused exclusively on technical due diligence and network evaluation

- Five former cable executives including former CTO of Charter Communications
- North & South America, UK / Europe, Australia & New Zealand
- 56 projects: buyside & sellside
- 35 clients: investors & service providers

Jack Burton

altice Lightpath

CABLEVISION

David Strauss

COMCAST BUSINESS

Lightpath

Sprint

at&t

Mike Giobbi

ARMSTRONG

Jay Rolls

Charter COMMUNICATIONS

COX

Randy Kinsey

POINT BROADBAND

Charter COMMUNICATIONS

COX

35 Clients

ANTIN	BAM broadband	CEQUEL III	DIGITALBRIDGE	I SQUARED CAPITAL	nbn	PAMLICO CAPITAL
APOLLO	BlackRock	CHORUS	EQT	INSTAR	NOVA INFRASTRUCTURE	POST ROAD GROUP
archtopfiber	bluepeak	Circumference Group	Fastwyre Broadband	MC PARTNERS	nuveen	Stonepeak
ARES	Boundary Street	CPP Investments	GI PARTNERS	MACQUARIE	OMERS	SURF
ISTATINE	CBRE	DIF	GRAIN MANAGEMENT	Morgan Stanley	PALISADE	WANRack

56 Projects | 20 Announced

BROADBAND SUCCESS PARTNERS

Geography	Type	Technology
Rural	Last Mile	Fiber
Suburban	Middle Mile	HFC/Coax
Urban	Long Haul	Copper
		Fixed Wireless

- Antin Infrastructure | Empire Access
- Antin Infrastructure | OpticalTel
- Archtop Fiber | G-Tel
- Archtop Fiber | Hancock Telephone
- Ares Management | Underline
- Astatine | Consolidated / KC
- BlackRock | AT&T
- CBRE | Gateway
- CBRE | WANRack
- Cequel III | Watch – Benton Ridge
- Circumference Group | TCW
- CPP Investments | V.tal (Brazil)
- GI Partners | Bluepeak
- I Squared Capital | Ezee Fiber
- Instar Asset Management | LS Networks
- MC Partners | SilverIP
- Palisade Infrastructure | Rainier Connect
- TIAA | Arcadian Infracom
- WANRack | Kwikom
- Bain Capital Credit | Surf

What we've seen
… and wished we hadn't

Network Planning & Design

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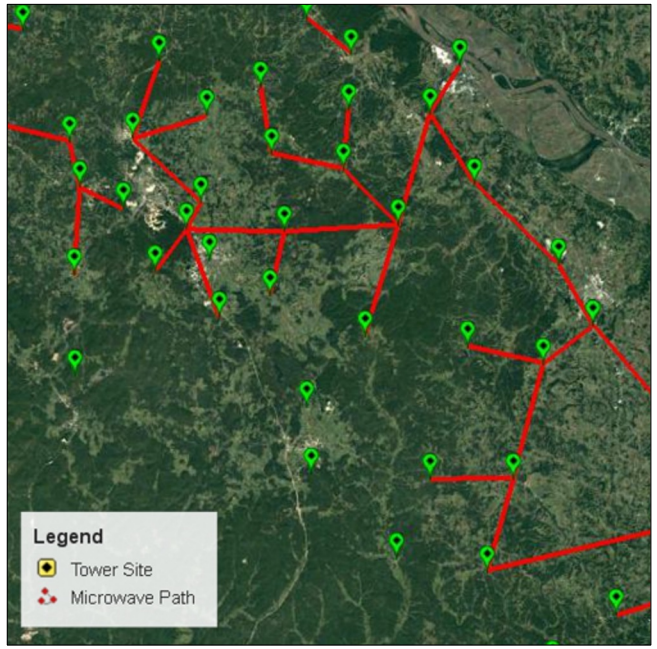
- ✗ Inadequate architecture – lacking needed redundancy
- ✗ Insufficient network as-built diagrams and documentation
- ✗ Discrepancies in plant mileage
- ✗ Limited available fiber with many segments lacking spares
- ✗ Unknown backbone capacity

Hub Name	Lateral Name Direction	Fiber Capacity	Fibers Used	Percent Used
123 Maple	LA-002 (E)	144	123	85.4%
123 Maple	LA-003 (W)	432	214	49.5%
456 Oak	LA-018 (W)	72	63	87.5%
456 Oak	LA-010 (E)	72	57	79.2%
789 Elm	LA-025 (W)	72	42	58.3%
789 Elm	LA-452 (N)	72	31	43.1%
234 Ivy	BB-101 (N)	144	23	16.0%
234 Ivy	BB-125 (S)	144	18	12.5%
567 Fern	BB-701 (N)	144	21	14.6%

Network Construction

- ✗ Unprotected, single leased circuit connecting cities to network backbone
- ✗ Limited daisy-chained bandwidth paths on backhaul network
- ✗ Constrained construction contractors
- ✗ Lack of aerial slack storage



Network Management & Performance

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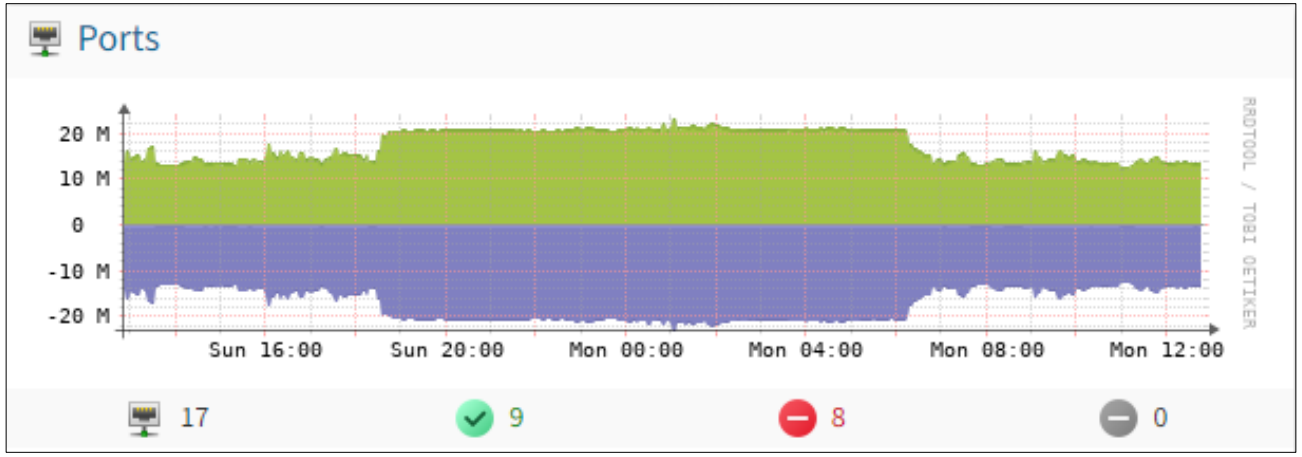
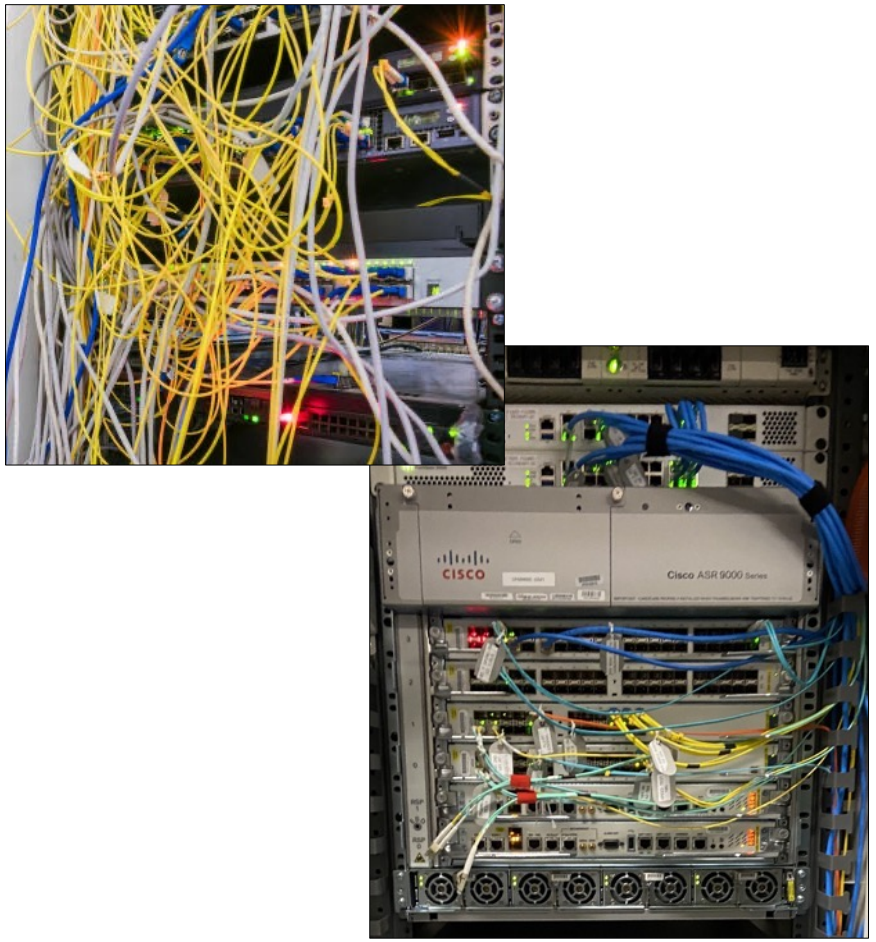
- ✗ Internet circuit nearing capacity
- ✗ Dual internet circuits each above 50% capacity > unable to carry full load on failover
- ✗ Insufficient IPv4 address inventory for planned growth



Equipment

- ✗ Obsolete PON equipment
- ✗ Risky use of indoor ONTs in outdoor enclosures
- ✗ Outdated, unsupported voice services platform
- ✗ Sloppy, untraceable wiring
- ✗ Dead or no batteries in power supplies
- ✗ No generator at headquarters with critical servers
- ✗ Inadequate warehouse inventory control



Technical Service / NOC

- ✗ No central Network Operations Center (NOC)
- ✗ Insufficient NOC functionality > Equipment alarms kept under surveillance only during business hours
- ✗ Inadequate effort to bring NOC in-house
- ✗ Technical staff too lean; broad individual responsibilities
- ✗ High labor rate for fiber placement
- ✗ Exempt job classification for field workers

Implications

1. Don't take anything for granted
2. Fully evaluate current & future readiness
   - A. Conduct thorough assessment
     - ✓ capex, opex, plant, NOC, OSS/BSS, org, customer / tech support, leases, IRUs
     - ✓ Physical inspection
     - ✓ Red flags + remediation steps
   - B. Engage the right resource

Thank you

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