Configuration Management at a Small Service Provider
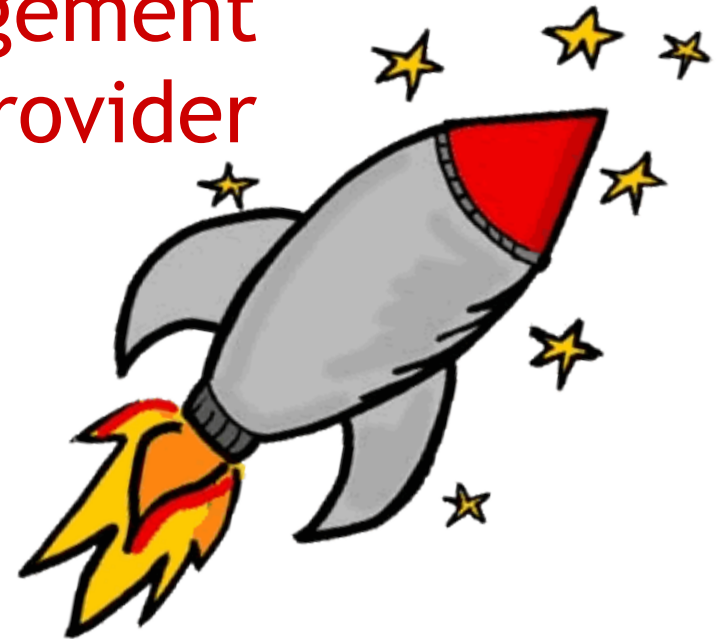
Bob Bender
Network Operations Manager
CTS Telecom

CTS
TELECOM INC.
Celebrating 100 Years of Service.

Location:	SW Lower Michigan – Kalamazoo & Battle Creek
Established:	Founded 1911 – Family owned
Services:	Voice, Internet, Optical Transport
Revenue:	$10 Million
Employees:	39
ILEC Fiber:	93 route miles of trunk
CLEC Fiber:	500+ route miles of trunk
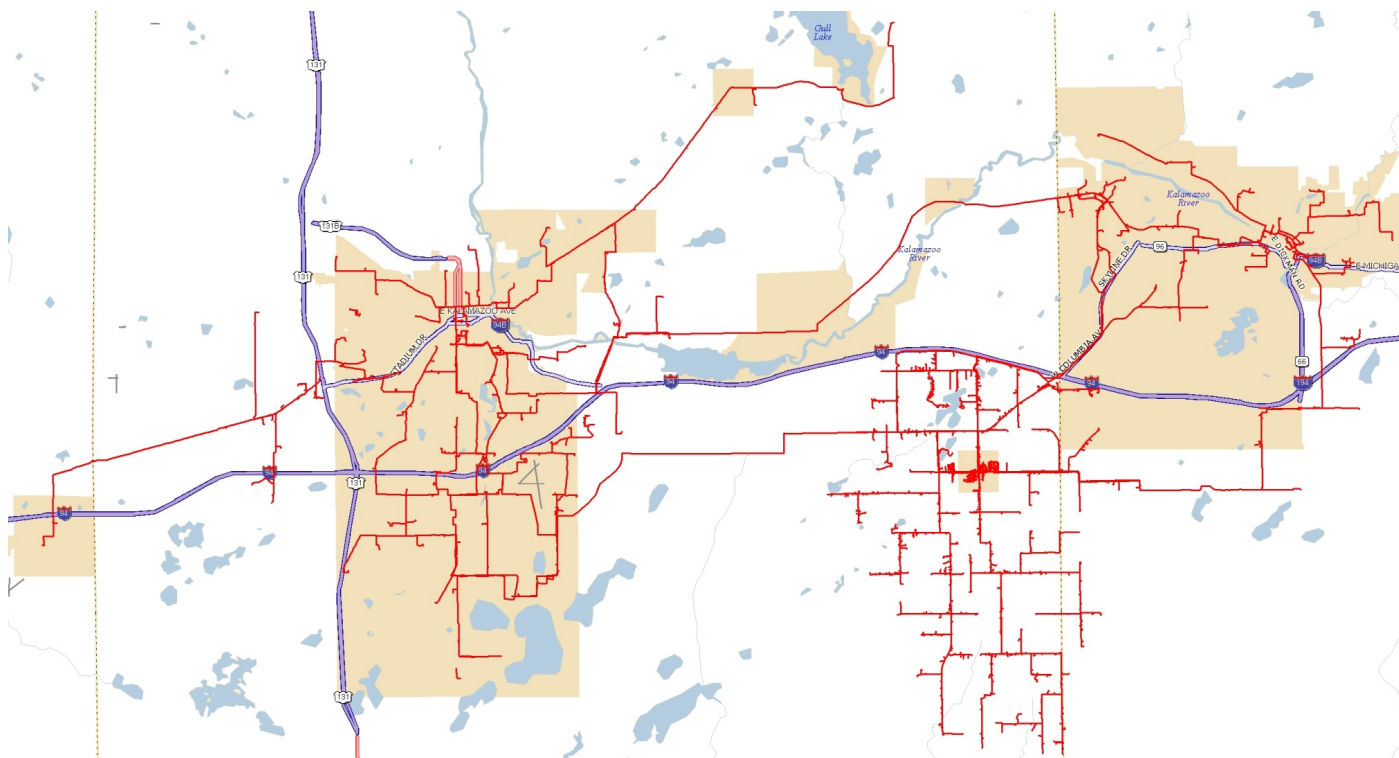
How does a small provider with limited staff and resources Manage configurations in a rapidly expanding network?

IP Core and Aggregation

Voice Services

**SONET Transport**

Optical Access Network

Carrier Ethernet DWDM

As a Small Provider We Rely Heavily on Management Tools from Hardware Vendors

Primary Monitoring Platform	
Orion Solarwinds	SNMP Console
Accounting and Traffic Forensics	
Fluke OptiView Netflow Tracker	Netflow Collector
Provisioning & Configuration Management	
Metaview Explorer(Web)/SIP Provisioning Server/Service Assurance Server	Softswitch
Cisco Transport Controller (CTC)	SONET
VLExpert (WhiteRock)	SONET
Advanced Operational Environment (Adtran EMS)	Edge Access
Adtran N-Command MSP (Adtran Config Mgmt)	Edge Access
Last Mile Sentinel (Wave7 LMS)	Edge Access
BTI ProNX Service Manager	Carrier Ethernet
RANCID	Routers
Trouble Ticketing	
CHR Solutions - OASIS	OSS

Practical
Configuration Management

- **Focused on Configuration Back-up and Restoral** – We have large numbers of edge access devices. Need to be able to restore a current configuration on a device in the event of failure.

- **RANCID** – (Really Awesome New Cisco confIg Differ)
  Really effective tool to manage core router configurations.
  Allows for incremental capture of all changes, and rapid restoral of previous configuration in the event of an error.

- **IP Phones** – This is a great success story for configuration templates.
  Would not be practical for IP phone deployment and support if not for configuration management system. Allows point and click configuration changes by Customer Service Reps.

- **TDM Edge Routers** – Implementing configuration management tool from the hardware vendor in 2012. Software is focused on configuration management, not an EMS.

- **ONT Management** – New software from vendor will enhance configuration and network management. Marked improvement over previous software tools.
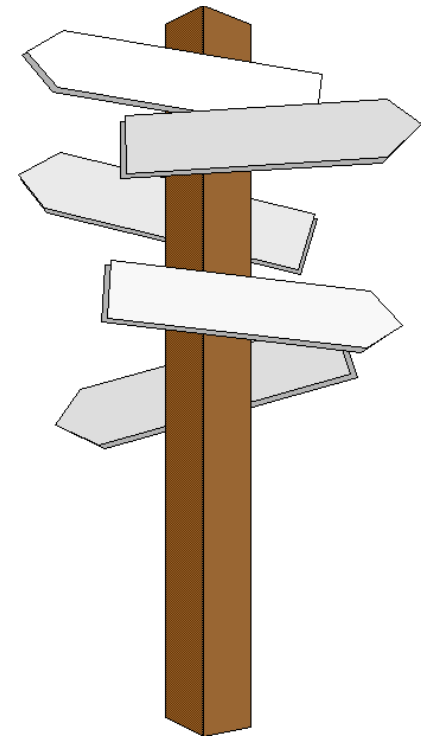
Observations

- **Evolve or die** – 100 year old Climax Telephone has moved from a ILEC telco to a CLEC packet optical service provider. Support structures must evolve with the network!

- **Crawl – Walk – Run Philosophy** – Incrementally building more robust support infrastructure.

- **Need affordable Audit Tool** - Aspire to utilize audit tools to analyze the configurations captured on RANCID.

- **Many Tools Priced out of Reach** – New NGN SONET management platform would cost more than $1,000 per node in aggregate. This is a non-starter.

- **Hardware Vendors are Starting to Produce Really Good Software** – In the past, many of the management tools were not so impressive. Hardware Vendors are significantly improving software that provides a solution and enhances their value proposition.