NDSU

COMPUTER SCIENCE

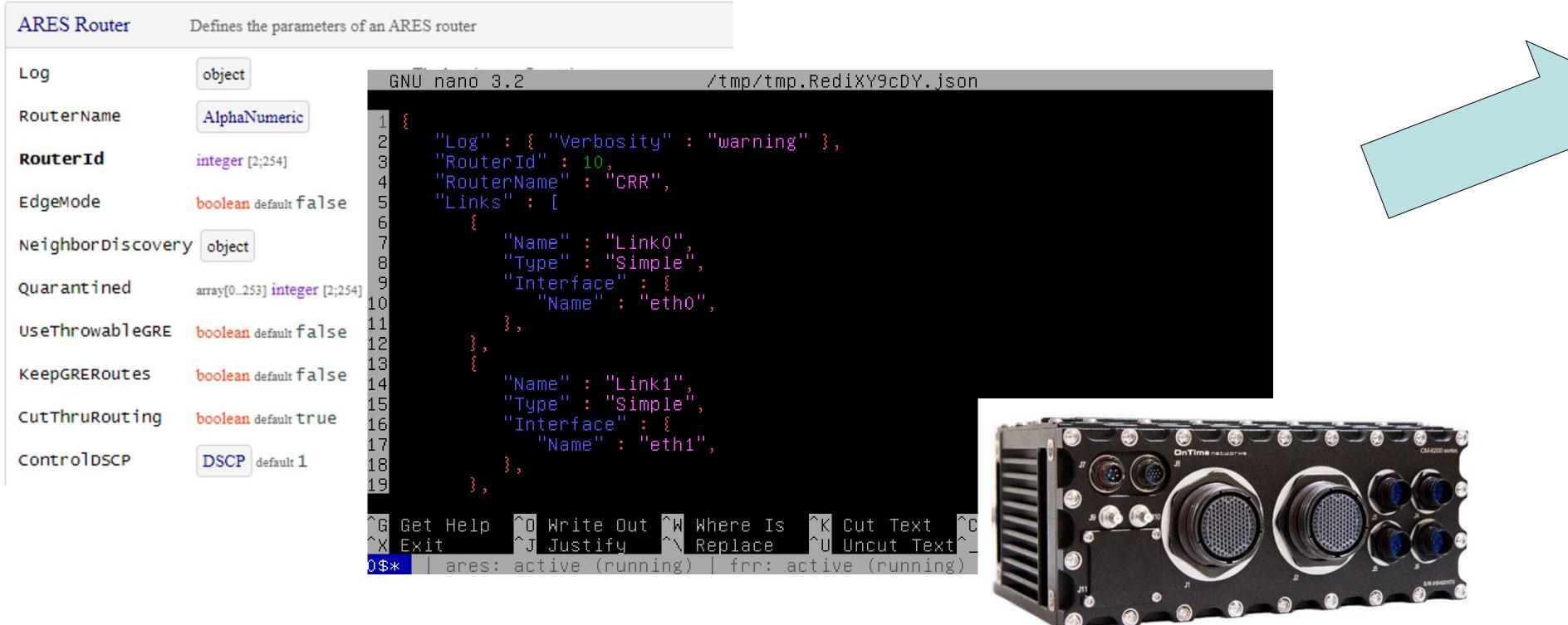
Capstone 2022



What is it?

- Ruggedized switch/router combination for use in military aircraft
- CRR-1000 Tactical VPN Router ATCorp Routing and Encryption Suite (ARES)

ARES Router Schema



The problem

- No GUI for configuring the ARES router; manual configuration of a JSON file performed via CLI with the help of external documentation
- JSON configuration may be intimidating for inexperienced users
- Reference implementation requested

Harmonizing Network Switch/Router **Configuration Interfaces** Team Members: Allison Scharmer, Corey Siltala, Jacob McGillick, Samuel Huot Sponsor: Architecture Technology Corporation

The solution

The process

Create one unified web GUI served from the router that allows configuration of both router and switch in one place Detect and prevent misconfigurations that could cause a communication fault between the two devices Easier to use; eliminates the intimidation factor

		CR	R-1000 Router			
Name Type	Interface	HardwareAddress	Inet4Addresses		Routes 🛛	
subnetB Simple	ethO	xx:xx:xx:xx:xx	Inet4Addresses 192.168.100.253/24 192.168.101.253/24	✓⊗	Network Via Default4 192.168.100.254 Image: Constraint of the second	
subnetC Simple	eth1	XX:XX:XX:XX:XX	Inet4Addresses 192.168.200.253/24	✓⊗	n/a	Sv
roc					 + Toggle New Row > Configuration > Monitor > System > Ports State Traffic Overview QoS Statistics QCL Status Detailed Statistics DHCP Security > Aggregation Loop Protection > Spanning Tree > MVR > IPMC > LDP > PoE > MAC Table > VLANs > Time sync > Diagnostics > Maintenance > Save to flash 	J5 J7

Implemented reverse proxy using Apache HTTP Server Created wireframe, then actual HTML pages with CSS and JavaScript, then Vue.js app with Express.js back-end Embedded switch GUI inside Vue.js app via proxied iframe Import/export of JSON file handled by Express.js Version control through GitHub repository

