

BOCC Brief for ARPA Funds Request

Project Name: Internet Resilience

Description:

Implement technology infrastructure which results in Deschutes County having multiple communications pathways to the Internet.

Cost of equipment to be deployed:

New firewalls: \$ 59,907.18

New routers: \$ 34,173.60

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Total \$ 94,080.78

The Problem:

Deschutes County currently relies on a single commercial provider for connectivity to the Internet.

Deschutes County has experienced multiple instances of service disruption due to provider service faltering. These disruptions include periods of partial service loss, complete service loss, short duration loss, and long duration loss.

Recall these dates and incidents for your consideration:

- October 18, 2021 – complete outage lasting 10.5 hours starting at 10:15am
- July 26, 2021 – complete outage lasting 10 minutes starting at 9:00am
- February 2, 2014 – complete outage lasting 1 minute starting at 8:30pm
- April 17, 2013 – complete outage lasting 45 minutes starting at 4:15pm
- October 1, 2012 – intermittent outage lasting 1 hour starting at 11:05pm
- April 9, 2012 – complete outage lasting 35 minutes starting at 8:10am

Putting a precise price tag on the cost of downtime is an imperfect endeavor. However, just using the event of October 18th, 2021 and considering the time of day the outage occurred, how many employees were impacted, and the average salary of those employees. The historical facts tell us the outage occurred during the majority of a typical day-shift which then implies the maximum workforce exposure. Conservatively assuming six work hours, 700 employees, and multiplied by the cost of labor yields a fair estimate of \$ 165,900.

The Internet connectivity now enables a wide range of services. Disruptions of any kind for any duration impeded employee productivity and erode public confidence in leadership. Examples of the services impacted include:

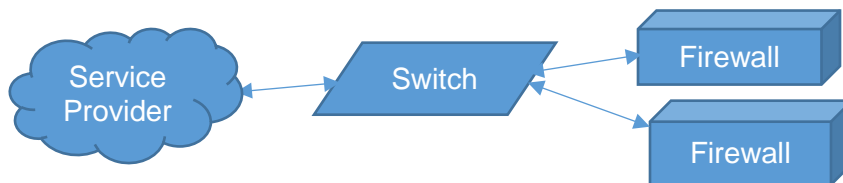
- phone services (supporting phone service between citizens and governing leadership; Crisis hotline; and general Health services);
- data services for elections processing;
- data services for Microsoft 365 productivity which includes: email communications, collaboration with community partners (such as: St. Charles, Mosaic Medical)
- website services for information dissemination to the community (Land Information System);
- data services for inter-agency operability with the State of Oregon, City of Bend, City of Redmond;
- data services for online payment receipt (property taxes, dog licenses, solid waste fees);
- data services for remote workforce;
- data services for criminal justice activities (such as Parole & Probation “LEDS” inquires)

The Solution:

Achieve Internet Resilience through service provider redundancy.

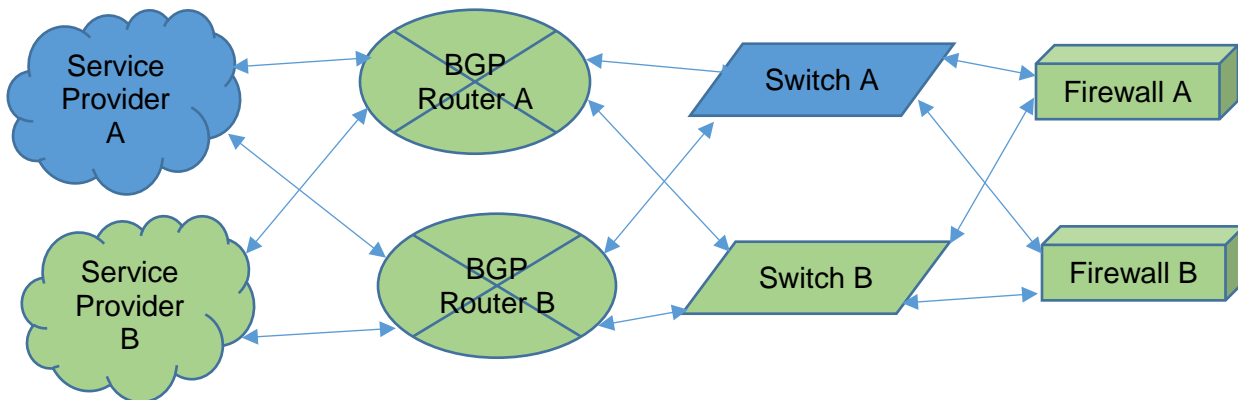
The current County Internet connectivity infrastructure consists of a vendor provided router (CPE) and County owned firewalls (Cisco brand).

Current Infrastructure diagram:



Internet Resilience Project Diagram:

New components shows are in “green” color.



The plan is to implement the above infrastructure diagram in which there are no single point of failure. To do this, the Information Technology department has:

- Established a professional services contract with a regional consultant,
- Conducted initial infrastructure design,
- Executed equipment procurement orders leveraging State of Oregon procurement vehicles.

Over the past three years the County has taken advantage of Internet reliant technologies to deliver the services our citizens rely upon us to provide. The benefits of this project provide resilience to all forms of County services. It is appropriate that the County invest in this infrastructure improvement at this time.

The Team:

The core team members executing this project are from the Information Technology department. The primary team leaders are:

- Joe Sadony

- Kevin Furlong
- Ron Tolley

The team is joined by other technologists from both the Sheriff and 911. These groups provide input regarding the design objectives and anticipated implementation processes.

In add engineering design services are obtained through the regional consultant on contract.

Anticipated Project Risks:

Risk	Mitigating Factor
Product supply chain delays	Manufacturers have already calculated delivery dates taking into account current delay factors.
Solution architectural design	The consultant has an excellent track record over several years working on previous technical projects for Deschutes County. In addition, the consultant has an excellent track record of producing this exact type of solution for other clients.
Willingness to cooperate from Internet Service Providers	The selected Internet service providers have already indicated their support and encouragement for this project.

Project Appeal:

- Internet resilience enhances the County business model for efficiency incorporating the Internet as a communication and connectivity mechanism.
- Refreshing firewall equipment provides more computing power to defend the County from cybersecurity threats and threat actors.
- At the current time, federal programs offer an opportunity to cushion the financial impact of implementing resilience.
- Partnering with commercial consultants promotes economic prosperity in our region.

Milestones & Metrics:

Milestone/Metric	Indicator of Success
Obtain ARIN number & public IP block	Creation of online customer account with ARIN, declaration from ARIN of assigned number and IP block.
Rough infrastructure design	Diagram and design notes.
Equipment list	Quote for equipment items necessary to build the solution depicted by the design diagram and notes.
Procure equipment list	Receipt of products from suppliers.
Detail implementation design	Document containing solution diagram
Detail implementation procedure	Document containing physical actions to be taken sequenced in the proper order to minimize or eliminate disruptions to existing Internet service.