

Geezertown Investment Plan Presentation

Presenter : [REDACTED]

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Fall 2025

Overview:

Assumptions	Nick Ellis
Network Design	Nick Ellis
Telephone System	
Employee Equipment	
Backup & Continuity Plan	
Reflection	
Summary	

Assumptions

Milestone 1

- Cost vs. Stakeholder Satisfaction
- Scope of our responsibilities (& what is out of scope)
- Proposed Location/Office Space Readiness

Milestone 2

- Estimates using public pricing with negotiation
- Both ISPs will provide separate physical connections for redundancy/failover
- Scope (Cabling, Wireless AP's)
- 50% of staff on-duty at any given office hour

Milestone 3

- Existing IT staff (requires minimal training)
- Hardware and Software compatibility
- Pre-built devices and free software
- Physical environment (temperature, etc.)
- Spare Equipment

Milestone 4

- Security, reliability and trustworthiness of cloud providers
- Offsite storage location is secure and trustworthy
- Staff available for rotating and storing tapes, and fueling the generator

Network Description

- Network Requirements (100 devices at a time, 75% peak VoIP concurrency)
- **Primary ISP:** Spectrum Enterprise
- **Backup ISP:** HTC Fiber Connection
- **Core Router:** Cisco ISR 4451-X
- **Switches:** 2x 10Gbps core switches, 5x 48-port access switches
- **Firewall:** Fortinet FortiGate
- **Cabling:** Plenum-rated Cat6A cabling
- **Wireless:** 8x Cisco Meraki Wi-Fi 6 Access Points
- Features: VLAN segmentation, QoS for VoIP, Redundancy

Cisco ISR 4451-X



Fortinet FortiGate



Cisco Meraki AP



c9400-48P-E Switch



Telephone & Network System Summary Milestone 2

System & Capacity		Internet Providers	Requirements
<ul style="list-style-type: none">• VoIP with cloud PBX• 100 total users• ~75 concurrent calls• Remote/VPN support	Infrastructure	<ul style="list-style-type: none">• Primary: Spectrum 1 Gbps fiber (99.9% SLA)• Backup: HTC fiber (confirm SLA + separate physical path)	<ul style="list-style-type: none">• Supports 100 employees, phones + computers• Bandwidth need: 500 Mbps – 1 Gbps• ~75% VoIP concurrency• Priorities: uptime, speed, security, scalability• Estimated cost: ~\$45,585
		<ul style="list-style-type: none">• PoE+ Cisco switches• Cat6a cabling• QoS for VoIP priority	
Devices		Core Network Devices	
<ul style="list-style-type: none">• 100 × Cisco 8845 phones• 3 × Polycom Trio 8800 units		<ul style="list-style-type: none">• Cisco ISR 4451-X router (dual WAN, VPN, QoS for VoIP)• Managed switches with VLANs + PoE+• Redundant core switches (10 Gbps uplinks)• Fortinet FortiGate firewall (2 units for failover)	Cabling & Wireless
Costs	Justification		<ul style="list-style-type: none">• Cat6a cabling (10 Gbps, PoE+, plenum-rated)• Fiber connecting core devices• ~8 Meraki Wi-Fi 6 APs (overlapping coverage)
	<ul style="list-style-type: none">• Hardware ≈ \$33k• PBX ≈ \$2k/month• Support ≈ \$5k/year	<ul style="list-style-type: none">• Scalable, cost-effective• Reduced maintenance• Reliable call quality	

Hardware & Software Description Sections Milestone 3

Objective 1

- Enterprise-grade hardware for high performance & reliability
- Supports future growth and minimizes downtime

Total estimated cost: **\$66,392.20**

On-site staff: 50 × Dell Slim Desktops

Intel Core Ultra 5 2210-Core, 16GB DDR5, 512GB SSD

Traveling consultants: 25 × Dell 16 Plus Laptops

- AMD Ryzen AI 7 350 8-Core, 16GB LPDDR5X, 1TB SSD, up to 22hr battery

Both devices: **Windows 11 Home preinstalled**

Objective 2

Peripherals

- **Logitech M185 Wireless Mouse** – 70 units
- **Logitech K270 Wireless Keyboard** – 60 units
- **Logitech H390 Wired Headset w/ Noise-Cancelling Mic** – 80 units
- Wireless to reduce clutter and hazards

Objective 3

Server

Dell PowerEdge T160 Tower Server

Hosts **Windows Server 2022**

Centralizes IT management operation

Reliable for small-to-medium enterprise needs

Displays & Printing

- **HP V24v G5 FHD Monitors** (HDMI included)
- **HP LaserJet Pro M501dn Printer**
Prints 45 pages per minute, reliable for office operations

Objective 4

Communication Devices

- **On-site VoIP Phones:** Cisco 8845
 - HD audio, headset support, video calling
- **Traveling Consultants & Managers:** Samsung Galaxy A36 5G Smartphones
- **Conference Rooms:** Polycom RealPresence Trio 8800
High-quality audio conferencing

Backup And Continuity Plan Milestone 4

On-Site Storage

- HDDs & SSDs installed in server for **frequent access & bulk storage**
- **Daily backups** to server; **weekly backups** to LTO-8 tapes via **HPE Ultrium Tape Drive**
- Backups managed with **Veeam software**
- Tapes stored in **climate-controlled, secure off-site facility** (Mini Mall Storage)
- Protects against **network breaches** and **physical disasters**

Cloud Storage

- **Azure Backup & Site Recovery** for encrypted, multi-location storage
- **OneDrive** for employee file access and collaboration
- **Windows 11 Pro + BitLocker** ensures **two-layer encryption**
- Ensures business continuity in case of **office or Azure outages**

Power Continuity

- **APC Easy UPS 3S**: protects critical devices during outages
- **Generac Guardian 18kW Generator + 250 Gal NG tank**: supports office devices for over a week
- UPS bridges gap until generator activates
- Ensures **uninterrupted power** and continued operations

Daily & Weekly Operations

- Employees save files to **device disks + OneDrive**
- **Daily server backups**, weekly **cloud + tape archival**
- Layered system protects **data integrity** and ensures **continuous customer service**

Potential Contingencies **Milestone 1 & 4**

How the Backup & Continuity Plan Addresses Contingencies

- **Data Loss or Corruption:** Daily server backups plus weekly LTO-8 tape backups ensure files can be recovered quickly if deleted or damaged.
- **Office Disasters (Fire, Theft, Natural Disasters):** Off-site tape storage and Azure cloud backups protect data even if the physical office is compromised.
- **Cloud Outages or Data Issues:** On-site disks and tapes provide a local backup in case Azure has technical issues or partial data loss.
- **Power Outages:** UPS provides immediate backup power to critical devices, and the generator can run the office for over a week, keeping operations running.
- **Employee Access & Collaboration:** Hybrid approach allows employees to continue working with OneDrive and local disks even during network or system failures.

Reflections Amongst Milestones 1-4

Milestone 1- Assumptions & Scenario Understanding

Key takeaways:

- Strong teamwork, clear assumptions, and stakeholder analysis.
- Considered relevant risks affecting business continuity .
- Provided structured analysis that guided our later technical decisions.

Strengths:

- Solid justification for site choice and employee roles
- Good overall structure for planning the IT solution

What we've learned from working as a team:

- Communication was essential
- Shared researched help form consistent pages

Milestone 2- Network & Telephone Design

Key takeaways:

- Very complete, professional, and realistic. We could've added additional cost saving alternatives or visual diagrams.

Strengths:

- Writing and teamwork produced a cohesive report
- Demonstrated strong technical research across routing, switching, and telephony

What we've learned as a team:

- Technical roles were divided amongst different strengths
- Consistent communication improved writing quality amongst different sections

Milestone 3- Hardware & Software

Key takeaways:

- Organized and technically solid. Could enhance with role based device tables or visuals for a clearer presentation.

Strengths:

- Enabled compatibility with earlier network design
- Professional writing and organization

What we've learned as a team:

- Division of roles based on technical strengths improved efficiency
- Overcame challenges in scheduling and revising by using shared documents and consistent check-ins

Milestone 4- Backup & Continuity

Key takeaways:

- Well structured layered protection plan. We could have included diagrams or architecture visuals as well.

Strengths:

- Demonstrated consistent teamwork across all milestones
- Comprehensive hardware and software plan supporting each employee role

What we've learned as a team:

- Learned how to integrate network, telephony, hardware, software, and backup systems into one cohesive solution

Project Summary + Takeaways

Final Project Summary:

- We delivered a complete IT infrastructure design covering networking, telephony, hardware, software, and business continuity.
- Solutions were scalable, secure, cost-effective, and aligned with Geezertown's needs.
- Our network and telephone systems are sure of high availability, reliable communication, and quality of service.
- Backup and continuity plan provides multi layered protection and fast recovery.
- Overall, our infrastructure supports Geezertown's expansion.



Project Timeline

Fall 2025	Milestone 1	Potential Contingencies & How We Addressed Them
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Fall 2025	Milestone 2	Telephone System Design
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Fall 2025	Milestone 3	Computer and Devices That Employees Use
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Fall 2025	Milestone 4	Backup And Continuity Plan
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Thank you!
