Atomic Synergistics Current Network Overviewg

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Company Background

* Atomic Synergistics is a business development firm founded by Jeremiah Atom in 2018.
* The company is built on the desire to help businesses achieve their goals by solving the most difficult problems they face.
* This includes designed solutions in marketing, sales strategies, production efficiency, logistics, and scalability.
* Recently, they were a part of a team that consulted on a large project to help Walmart launch Walmart+.
* To land the contract with Walmart, Jeremiah had to quickly expand his team and in addition to the high visibility of this contract, the team has continued to grow and evolve rapidly.
* Currently, there are 60 team members, which is expected to double in the next year.
* When Jeremiah designed his current office, he had an eye for technology and invested in a solid setup, detailed below. However, with the recent, rapid growth he did not have the time or energy to keep up with the network infrastructure. It has since fallen into disrepair.
* The original, small office has grown to include two adjoining office spaces and now there is no more room. Jeremiah and his recently assembled management team have decided that it is best to make the move to a new, larger space across town that can accommodate their current team and expected growth.
* The new office will have a full, dedicated server room, stationery cubes, and a handful of private offices as well as mounting locations for 3 wireless access points.
* The new location comes with Google Fiber already run to the demarc in the server room and tops out at 1000Mbps.

Network Design Goals

The management team is looking to start with a clean slate at the new location with a large investment in new technology, including a full-time network administrator. To avoid falling into the same situation that they find themselves in now, they have developed a list of goals for you to achieve when designing the new network. The team has decided that they will not set a hard budget for this project and are willing to make the investment necessary to accommodate current and future needs. Although price is not a primary concern, you should be ready to justify all purchases on a cost/benefit basis.

* Scalability
  + This includes adding users and adding to the network, as needed.
* Reliability
  + All components need to be business grade and work well together.
* High Performance
  + End-user machines and networking components need to be able to work at high levels and be future-proofed where possible.
  + Wired connectivity as well as wireless.
* Centralized Management
  + Management of all workstations, servers, and user accounts.
  + Centralized management of all networking components with cloud-based options where possible.
* Security
  + Security against breaches, and security against data loss.
  + Acceptable use policies for employees.
* Standardization
  + Where possible, stick with similar vendors across product lines for ease of management.
  + Documentation for Acceptable Use Policies, Network Diagrams, and Standard Procedures.

Current Employee Network Issues and Goals

*We recently interviewed a few staff members about their experience working with the current network. Below is their feedback with additional insight into their department's needs. This information will be helpful as you plan and design the new network.*

“Thanks for reaching out regarding my experiences with the network and my hopes for the new design. In the marketing department, we are constantly working with very large media files, and we have noticed that much of our current time is spent waiting for files to transfer from a workstation to OneDrive. If it would be possible, we would greatly benefit from faster transfer speeds for these files.” ***-Marketing Manager***

“Good morning, one of our biggest goals would be to have a dedicated testing environment that we can use for testing new software. Ideally, this would be isolated from the standard network, so we do not have to worry about breaking anything in the production network.” ***– Senior Logistics Strategist***

“Overall, we have been in pretty good shape with the current network. My biggest concern with the new building is my office is in the back corner and I don’t want to suffer from weak Wi-Fi connectivity.” ***-Data Scientist***

Network Overview

*With the expansion of the offices done in stages, there are three separate networks, the original “main” office and two “expansion” offices. Each one is separated out in the list below.*

**Original Office Space**

The main server/networking room had to be moved to accommodate additional desks, so it is now all stuck into a non-ventilated storage closet.

**Networking**

* 2 Linksys Business LGS116
  + These 2 switches included all hardwired workstations and servers.
  + At first, they tried to use the existing network drops, but found that most of them did not provide full connectivity so they ran their own cables to each machine.
    - This caused major problems when they moved the IT gear into its current utility closet. (See attached pictures)
* 1 NetGear Nighthawk R6700
  + Wireless Name: Atomic Wi-Fi, Password: Atomic
  + With all of the stated issues with running wired connections, this is now the main network connectivity for all workstations.
  + **This device is currently broken and cannot be reused.**

**Servers**

* 2 Dell PowerEdge R640s
  + These are set as Domain Controllers and carry out DHCP for the wired network.
  + The first 25 users were all created with AD accounts.
    - Since then, all users have their own laptops with no AD integration.
* 1 HPE ProLiant DL180 Gen10
  + This server is the main file server and is running a RAID 5 on 7 of its 8 available 250GB SSDs. This server filled up about a month ago due to the large number of files associated with the Walmart consultation and previous files. Since then, all storage has been done either locally or on a growing collection of external SSDs of various models and sizes.

**Workstations**

* 15 Dell XPS 15 on Windows 10 Pro
  + As the first batch of laptops, these machines are all joined to the domain and their users log into the domain on them.
* 10 HP EliteBook 840G4 on Windows 10 Home
  + These were purchased on sale, but they have never been able to be joined to the domain, so users log into them locally with administrator rights.
* 5 Apple MacBook Pro 16in. on macOS Mojave

**Two Expansion Offices**

**Networking**

* 1 ASUS RT-ACRH13 Wireless Router in *each expansion office space.*
* Initially intended to be set up as access points to extend Wi-Fi to these areas, but that proved too complex, so they are their own Wi-Fi networks tied into the main office’s Nighthawk Router.
  + Atomic Wi-Fi2, Password: Atomic
  + Atomic Wi-Fi3, Password: Atomic
* **These wireless routers were damaged during the initial stages of the move and are unable to be reused.**

**Servers**

* N/A

**Workstations**

* Various BYOD devices, none of which are on the domain.