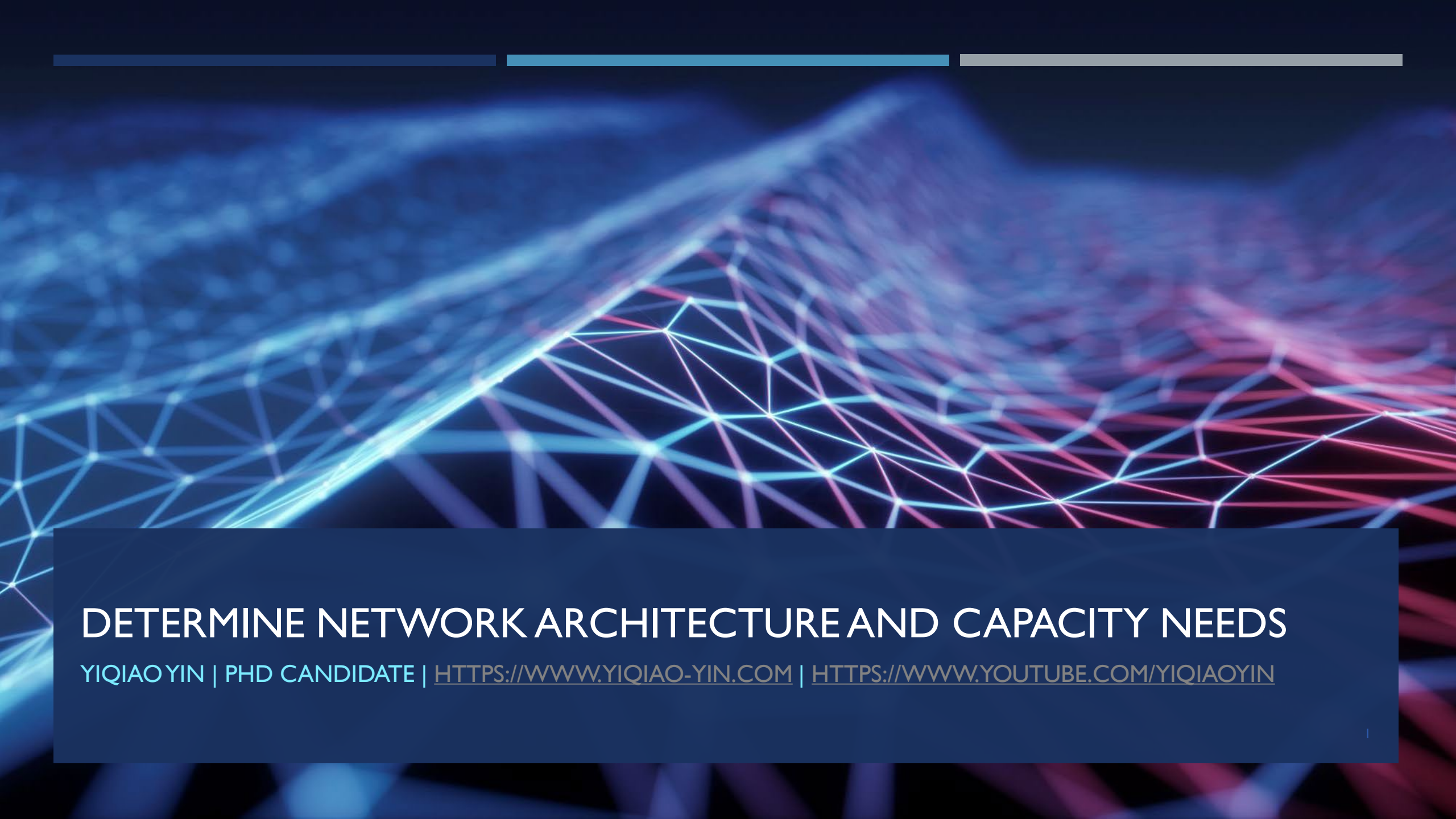

DETERMINE NETWORK ARCHITECTURE AND CAPACITY NEEDS

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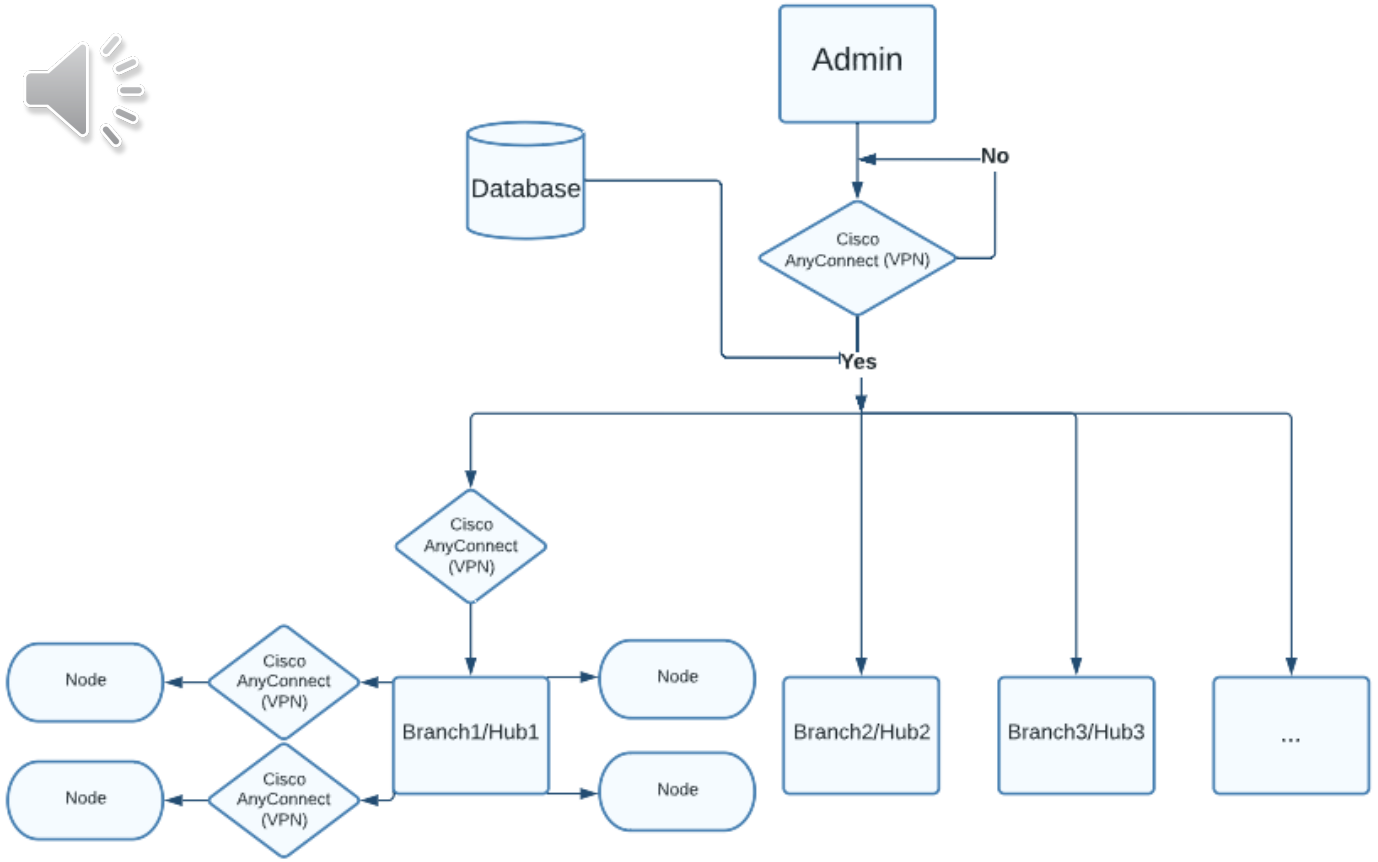
PREMISE AND COMPANY NEEDS

Image Source: https://medium.com/swlh/history-of-the-internet-50-years-ago-today-413a7518307a

This assignment follows from a series of previous work to expand a company's network mapping from an engineering perspective. The premise of this assignment is listed below:

- The corporation operates on WAN located in the Midwest region of the United States
- The CEO aims expansion to 30+ locations in the northeastern region of the country
- Each branch location has an active domain
- The number of employees will grow from 150 today to about 500 in the next 18-month period
- Customers are equipped with mobile and online banking services

FULL NETWORK TOPOLOGY



Upon the implementation of the Cisco AnyConnect Mobile Client, the network topology that was proposed from the previous assignments should also be updated.

The hierarchical topology will need to have Cisco AnyConnect initiated at each branch. This means the main branch on top, the branch/hub in the middle, and all the sub-nodes in the end. Each of the branch/sub-branches will be equipped with Cisco AnyConnect.

This branch/hub will need to be approved with Cisco AnyConnect to have data accessed at the branch level. This branch/hub will need to be approved with Cisco AnyConnect to have data accessed at the branch level.

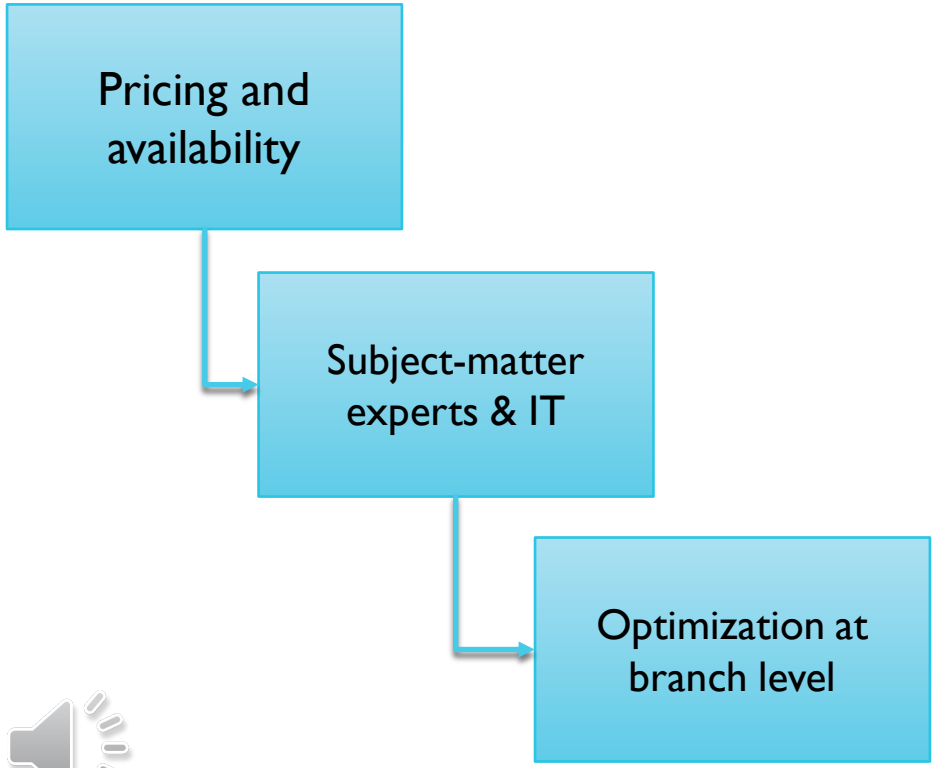
Then each employee may ask for Cisco AnyConnect for permission to log in to the branch's private network. Upon approval of this request, the employee may have access of the branch-level data. We used 2 nodes as an example, but there can be multiple nodes in the endpoint.

DESIGN BEGINS WITH THE INTERNET

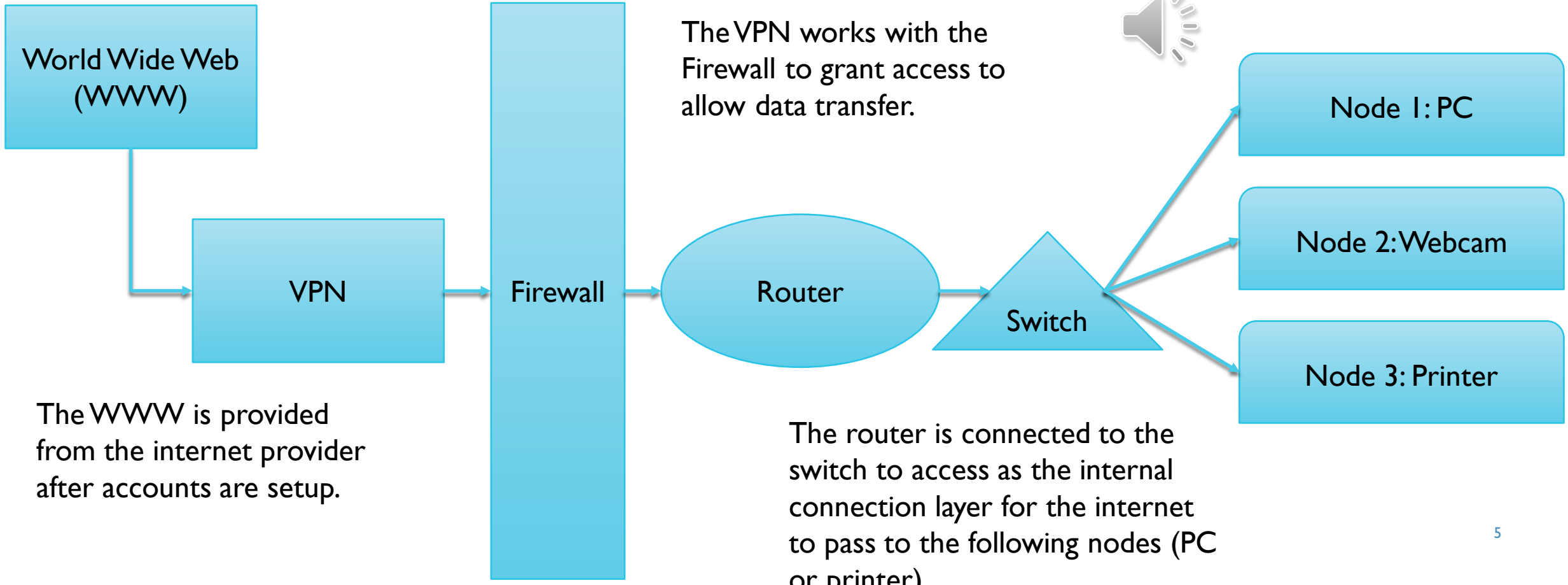
"Internet connection that feeds into the company"

An internet service provider such as Verizon or AT&T is recommended to provide the internet services that feeds into the company's network. The digital workplace for the corporation needs to be dependable and fast. Speed and reliability (both are contributing factors discussed in previous assignments) play important roles in the proposal. Fiber-optic network is recommended to be the final form of execution for the internet provider.

How to get it started?



HOW TO FEED INTO THE COMPANY



The VPN works with the Firewall to grant access to allow data transfer.

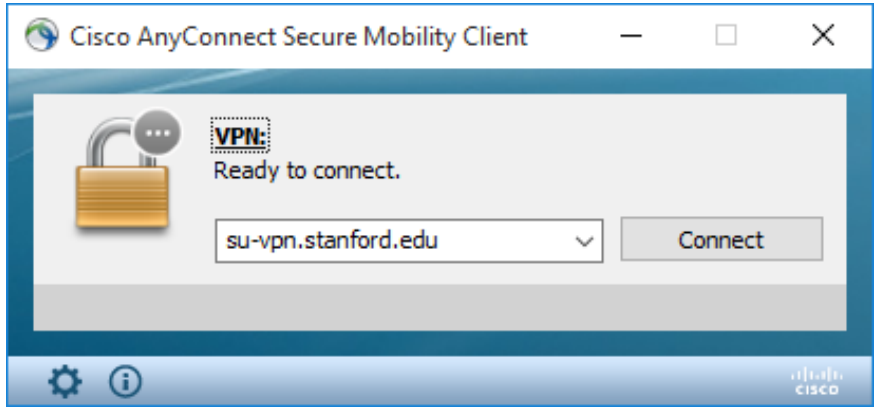
The WWW is provided from the internet provider after accounts are setup.

The router is connected to the switch to access as the internal connection layer for the internet to pass to the following nodes (PC or printer).

TO VPN

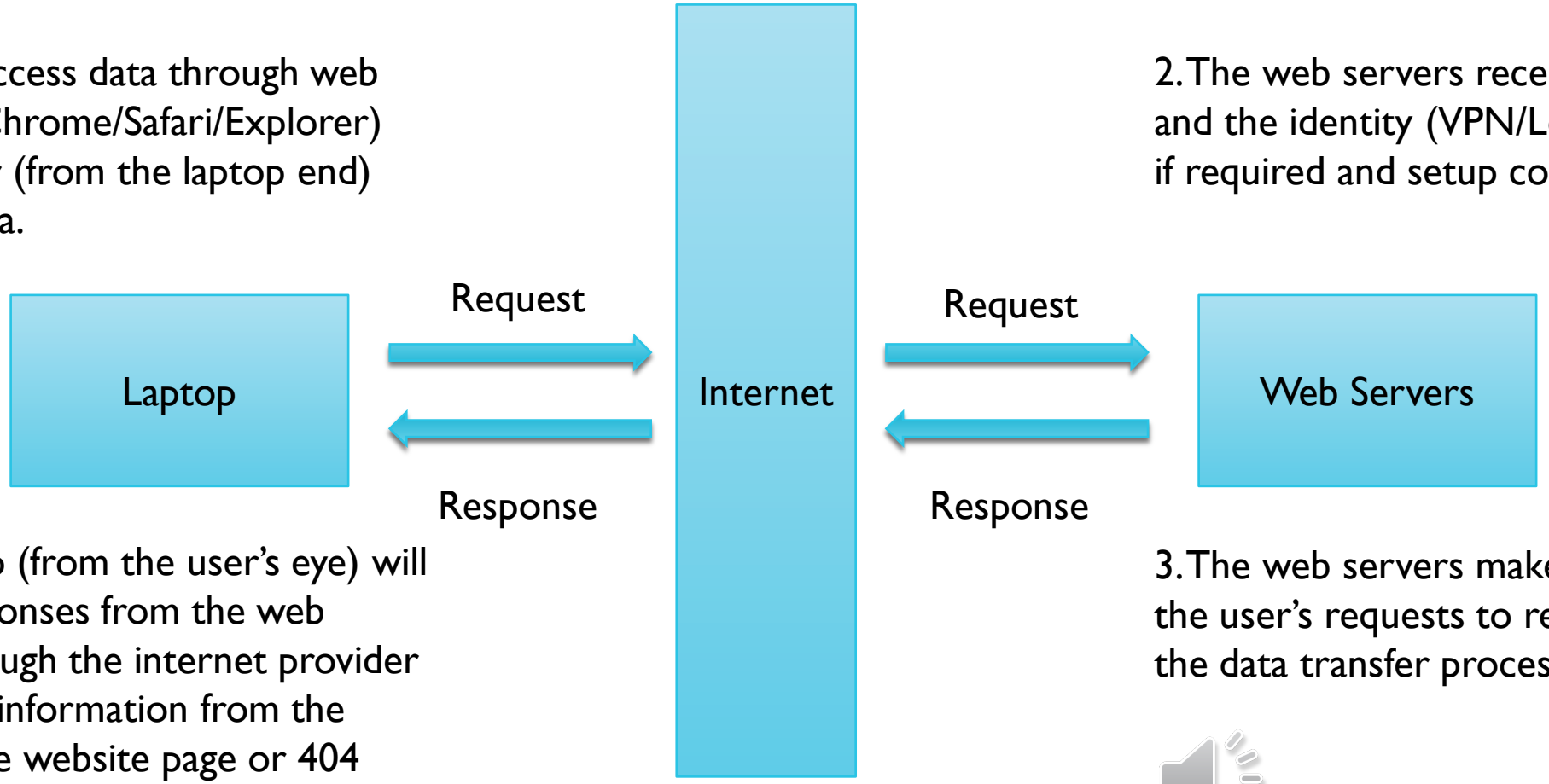
The proposal is to use a third-party network encryption provider called Cisco AnyConnect. This assignment proposes the company offers Virtual Private Network to connect users with their account and ID numbers using the Cisco AnyConnect Secure Mobile Client. It is a mobile app that can be downloaded on a cell phone that relates to an individual phone number.

The setup of the proposed solution, Cisco AnyConnect Mobile Client, is easy to use. The user machine will be installed with this application. The mobile devices for each user can install this app called Cisco AnyConnect. Using the app, a user can login to the VPN which then can access company private network data.



TO WEBSERVERS

1. Laptops access data through web browsers (Chrome/Safari/Explorer) and the user (from the laptop end) requests data.



2. The web servers receive the request and the identity (VPN/Log in/Firewall) if required and setup correctly.

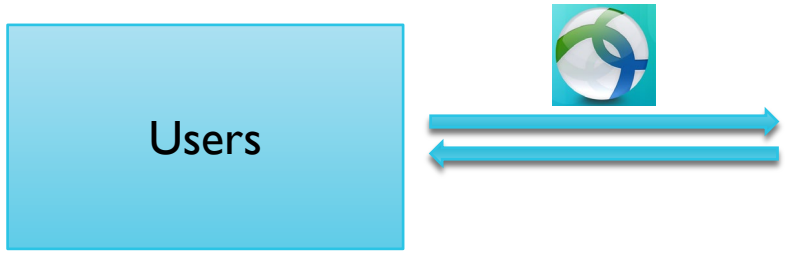
3. The web servers make a response to the user's requests to release/prohibit the data transfer process.

4. The laptop (from the user's eye) will receive responses from the web servers through the internet provider and see the information from the browser (the website page or 404 error if the visit is not allowed).

TO STORAGE AND BANDWIDTH (STORAGE ONLY)

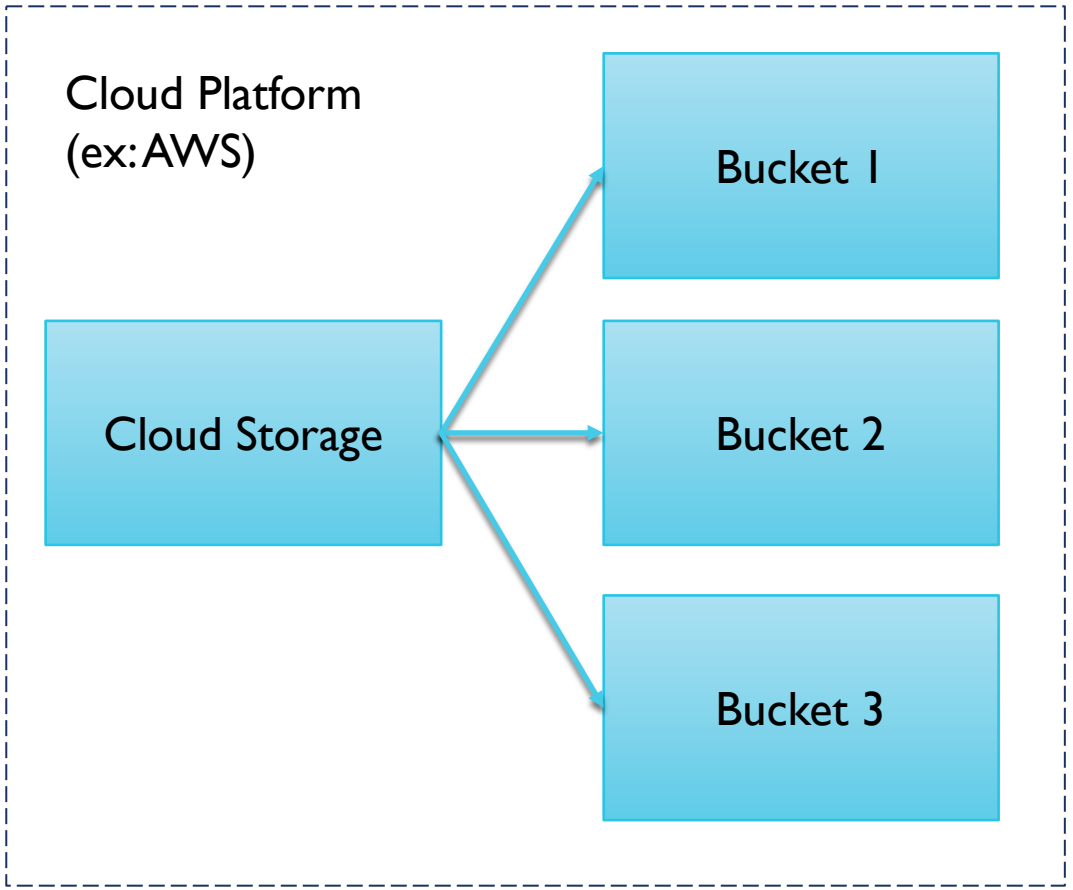
"Request"

Users request for data upload/download.



"Response"

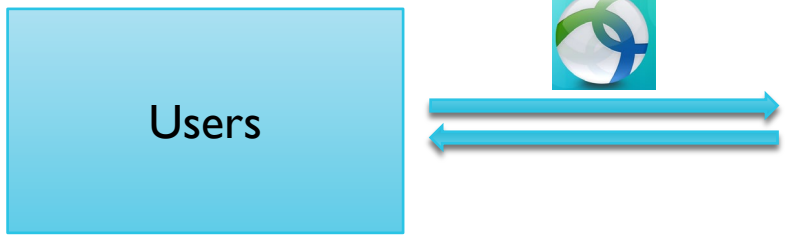
Cloud platform (such as Amazon AWS) approves requests by VPN and user login information and then response to the requests.



TO STORAGE AND BANDWIDTH (WITH VIRTUAL MACHINE)

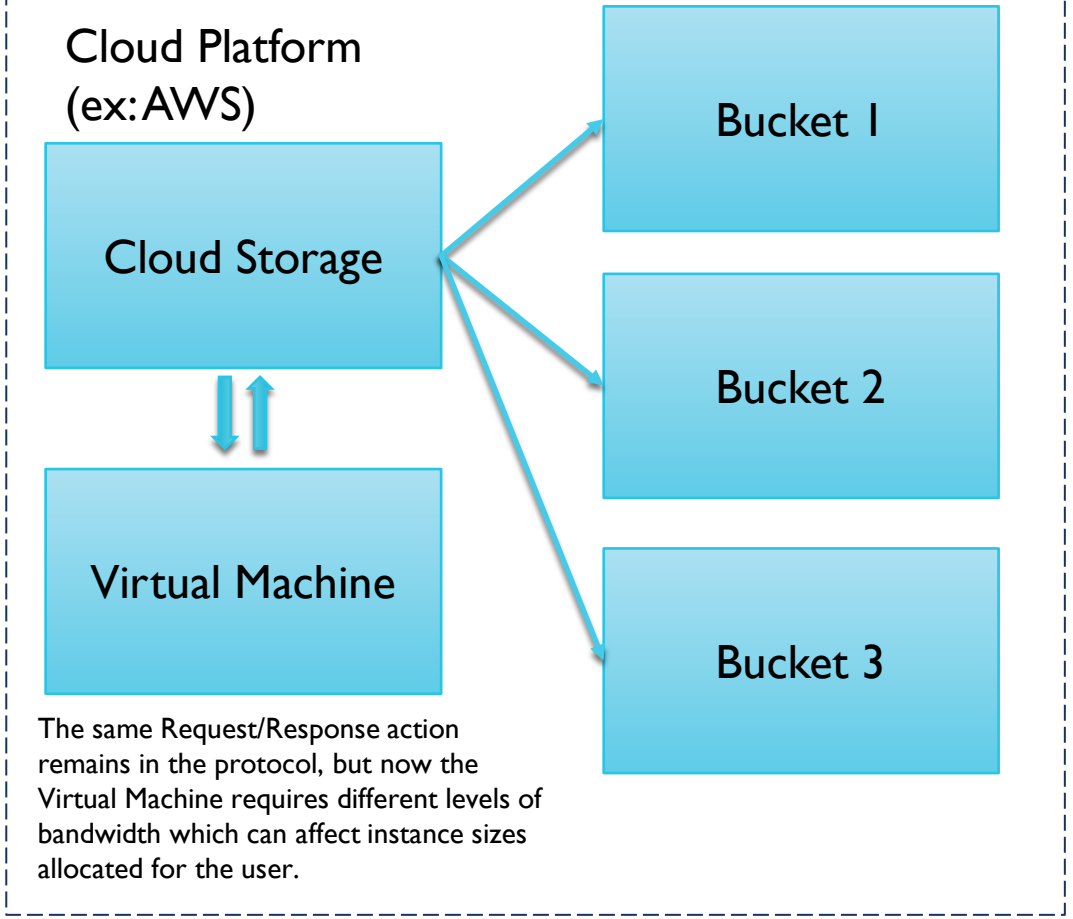
"Request"

Users request for data upload/download.

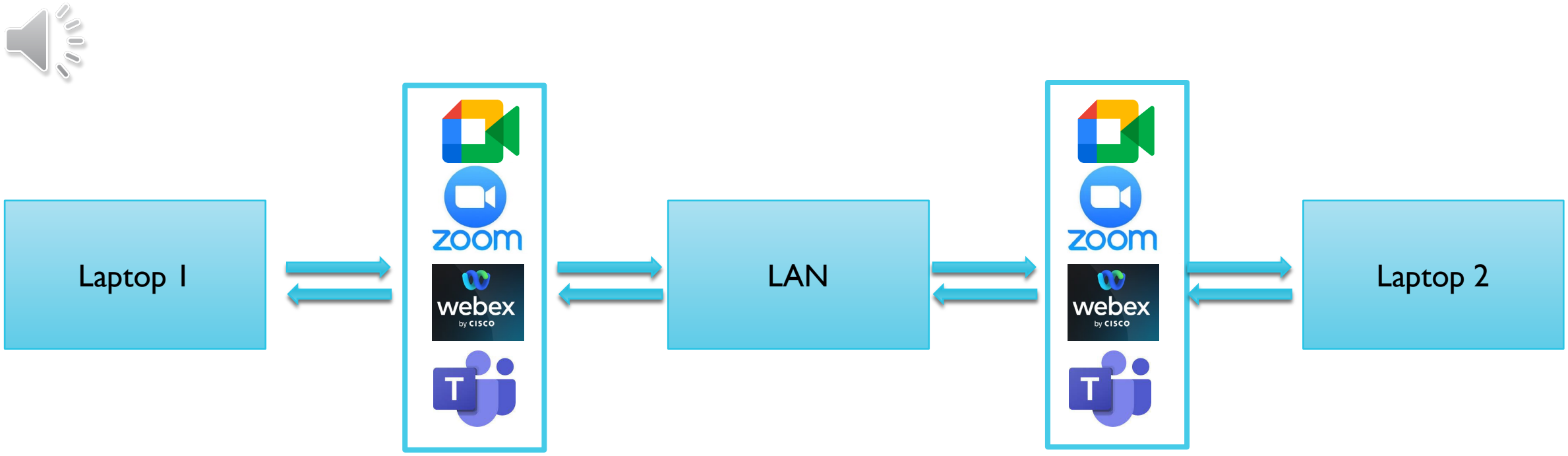


"Response"

Cloud platform (such as Amazon AWS) approves requests by VPN and user login information and then response to the requests.



TO VIRTUAL MEETINGS



Both login information and VPN are required for the data transfer of video conference.

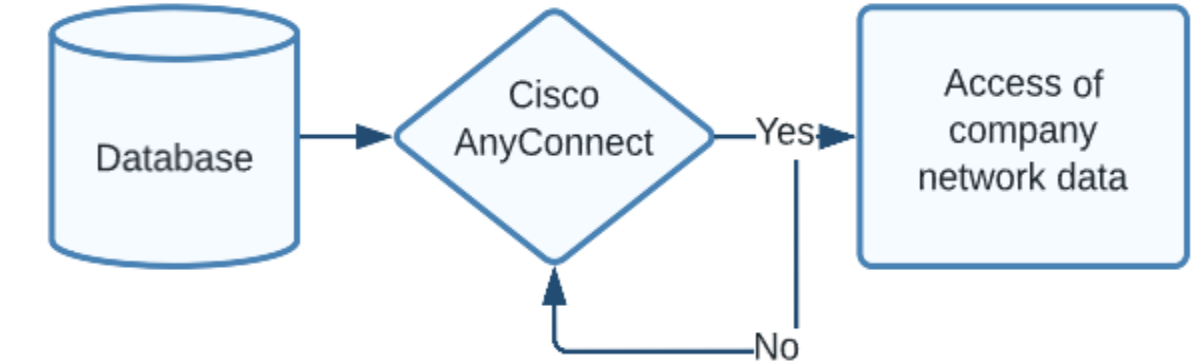
The internet provider and firewall validates the information with VPN and account login to release information and response to the user.

TO EXTERNAL GUEST ACCESS AND EMPLOYEE WFM

The implementation is to set up a Cisco AnyConnect Client for each personal device. The company's database provider will require the access of Cisco AnyConnect to be approved with a secured password to be able to have access of the company's network data.

The password is required to be changed on a quarterly basis and cannot be allowed to have repeated password.

For guest usage, free WIFI can be provided. However, the information allowed should only be public information such as company's homepage. Internal data should not even be allowed to be put in place with the free WIFI connection.



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