

# CCDElabs

## Your Gateway to Success Towards CCDE Labs

Saturn New  
Scenario 1  
Real Labs  
v3.0

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## Guidelines

Before starting, please read the below guidelines:

1. In this module you will be creating, analyzing, validating and optimizing a high-level network design. All relevant resources needed to successfully complete this module are provided within this module. No device access is provided.
2. The menu bar on the same screen can be used to navigate to:
  - **Exam content:** Here you will find the exam questions. This module is scenario based and contains approximately 25-30 web-based items. No device access is provided.
  - **Resources:** Here you will find provided resources. An initial set of resources is provided at the start of the module. Additional resources are provided as you progress. Resources are cumulative and remain available throughout the remainder of the module. It is recommended to read all the provided resources prior to answering a question.
  - **Guidelines:** If you want to review these guidelines again during your, you can find them here.
  - **Help:** Here you will find more information about the exam environment, module navigation and functionalities.
  - **End Exam Section:** Clicking this button will end this exam section.
3. Backwards navigation is disabled; once you proceed to the next question, you will not be able to return to the previous question.
4. Question point values will not be visible. More complex items might have partial scoring opportunities.
5. Both level feedback can be provided at question level. Feedback will be processed, but Cisco will not reach out to you to discuss any feedback provided. Any time spent on providing feedback will not be compensated.
6. Access to selected Cisco online documentation, including Cisco Validation Design documents, is available from your desktop. However, the availability of this documentation is outside the CCIE/CCDE Team competence.
7. If you suspect an issue with your exam environment, contact the lab proctor as soon as possible.
8. You have 2 hours to complete this module. If you finish early, you may start with the next module, but any unused time will not be carried over to the next module.

## Introduction:

### Question Navigation:

- Please respond to each question before you continue to the next question
- When you have completed a question, click NEXT on the button right of the screen to move to the next question
- You will not be permitted to return to a question after you have clicked NEXT.

### Documents:

- Scenario documentation is presented at the beginning of each section. You can access these documents by clicking the documents button at the top of your screen.
- Additional scenario documentation appears throughout each section. You are notified via a notification screen when new documents become available. When a new document becomes available, a graphical icon appears on the Documents button and next to the new document inside the document window.
- To highlight text within the documents, select the text that you want to highlight, click the Highlight button at the top of your screen and change the highlight color. You can also remove highlighting. The highlighting persists as you progress through question within this section you can highlight all documents; for example, graphics cannot be highlighted.

### Exam Display:

- The exam is intentionally designed to use only half of the screen to display questions. This allows you to view supporting document while you answer the questions.
- Documents can be resized by using the resize handle in the lower right corner of the window.
- You can increase or decrease font size for the text from the drop-down menu on the top right of the screen. You can change Normal Font, Small font to medium font or large font. If you use medium or large font, you might need to use scroll bars to view the entire screen. In addition, a few exam components, such as some interactive items, remain at their original size to ensure that the content displays properly.

**Task Time:**

- You have four hours to complete two sections of the exam in the morning and four hours to complete two sections in the afternoon. The exam timer display on the top of your right site.
- A Section Specific progress bar is also displayed at the top right to help you manage your time within each specific section of the exam. The progress bar represented the percentage of material that is completed the specific section. It restarts when you begin another section of the exam.
- Please use the timer and progress bar to ensure good time management during the exam.

**Notes:**

- You are provided with an electronic notepad to use to take notes during this section of the exam. Click Notes at the top of screen to access the notepad.
- You can copy, paste, Undo and redo notes that you make within the electronic notepad. However, you cannot highlight material on the notes pages or copy and paste from question or documents pages.
- Your notes persist as you progress through the questions in this section.

**Comments:**

- During the exam, use the comments button at the top of screen to record specific comments on any question.
- Click Save to store a comment, or click Cancel to discard a comment.
- Comments are reviewed and considered during exam maintenance and are used improve the exam. Cisco will not contact you about comments.
- The amount of time that you use to enter comments is considered to be part of the total time that you allowed for completing the exam, In other words, the exam clock will not stop while you enter comments.

Click the Introduction button on the top of the next screen to access this introductory information, when you are ready to begin this section of the test. Click Next.

## **WELCOME TO SATURN MANUFACTURING COMPANY!**

In this module of the exam, assume that you are a network consultant hired to provide design advice for the manufacturing company SATURN. Ensure that you read and consider all the information provided to you through documents, drawings, emails and other relevant information.

**Good Luck!**

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## Saturn Functional Specification

Saturn Manufacturing Co. (Saturn) is a Chinese global manufacture or aircraft parts, with CNY 7.7 billion in annual sales last year. The headquarter and main factory are in Beijing, China, with a disaster recovery (DR) location in Shanghai and remote sites spread throughout China.

The previous CEO passed away and was replaced by a new technologist CEO, whose mission is to modernize their IT infrastructure to grow on their current segment, but also manufacture new product lines for the consumer market and is now producing nose hair trimmers and similar products.

The new CEO believes that collecting data along every point of the manufacturing and customer journey will give Saturn an edge by proactively anticipating needs, mitigating risks, delivering personalized and relevant product and services, and improving customer experience. To achieve his goal, the CEO established an IT council lead by the CIO. The IT council will play an advisory role and set strategy. The council only gets involved on the bigger picture of the modernization journey rather than in the day-to-day activities.

The CIO along with the IT council took the mandate of modernizing the infrastructure to make sure the systems and applications to be introduced will seamlessly integrate and deliver on the required outcomes. The modernization journey includes crafting a strategy roadmap to include a multi-cloud to make sure that Saturn is not left behind on the technology trending.

A pilot IoT system in line with the data center, campus core, wireless and WAN will be the first on the journey of IT modernization selected by the IT council. The journey will include machine learning/artificial intelligence (ML/AI) systems, big data (Data Lake), virtualization, containerization, segmentation, security, mobility, and data streaming.

As a first step of the journey, this is the high-level functional specifications documents of the current IT infrastructure, which is comprised of a primary data center in Beijing and a DR center in Shanghai, a campus core, a WAN, an isolated (Airgap) network for industrial control systems and limited wireless.

### Data Center:

The current data center was designed in such a way that functional service blocks are using distribution switches and access switches. The service blocks are tied together using a core Layer 2/ Layer 3 switch. There is no Layer 2 path and VLAN overlap between service blocks.

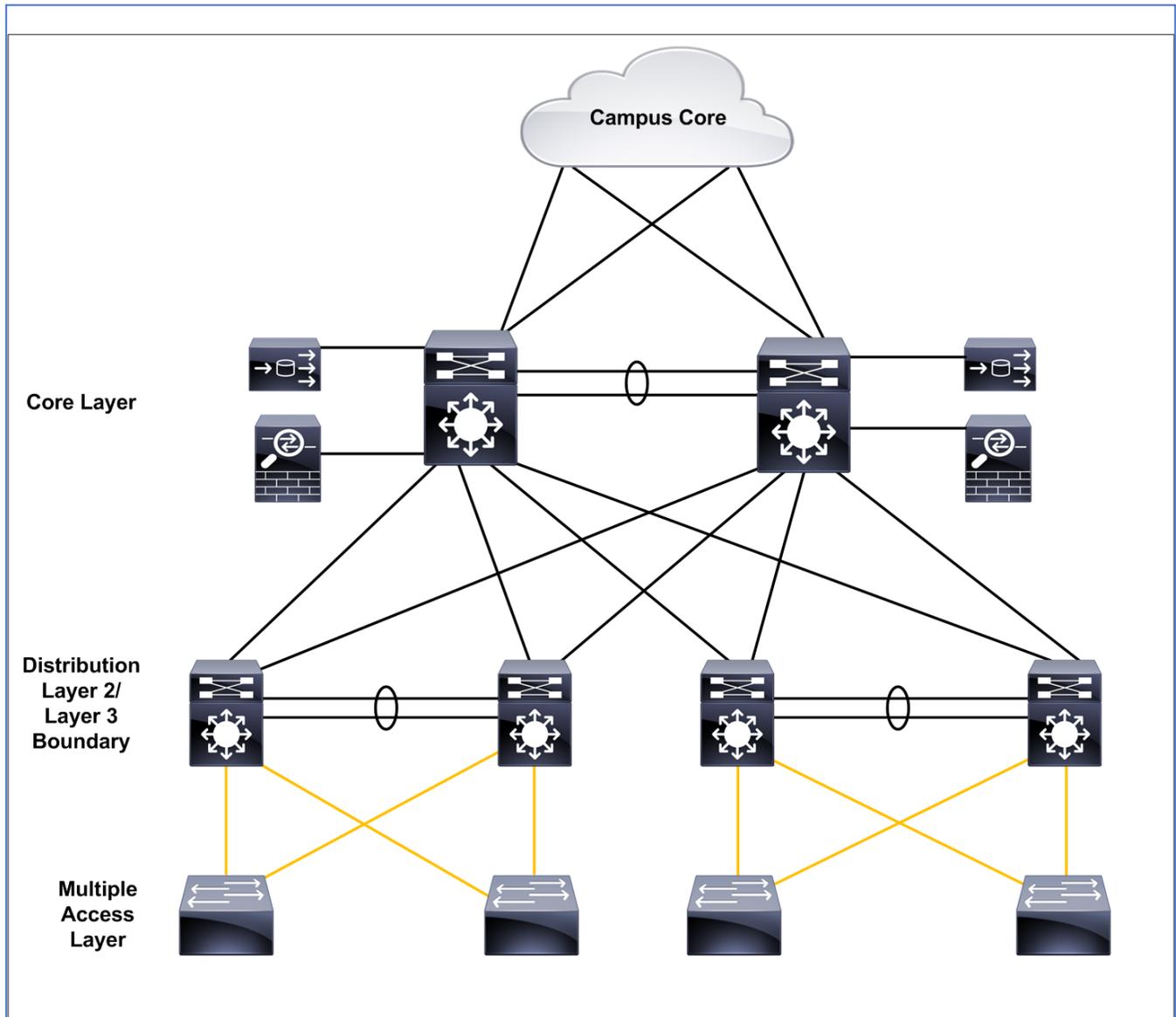
### Current Functional Specification Summary

- 3-Tier – Core/Distribution/Access.
- The Distribution switches act as the demarcation point for Layer 2 / Layer 3.
- Access layer are Layer 2 only
- There is separate SAN storage
- The data center does not support Multi-chassis EtherChannel (MEC).
- Rapid-PVSTP is deployed
- VRRP is used as the First Hop Redundancy Protocol
- EIGRP is used as a routing protocol
- Network services like firewall, load balancer and IPS/IDS are connected to the core.

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## Topology

Initial Data Center Overview Diagram



## Campus Core

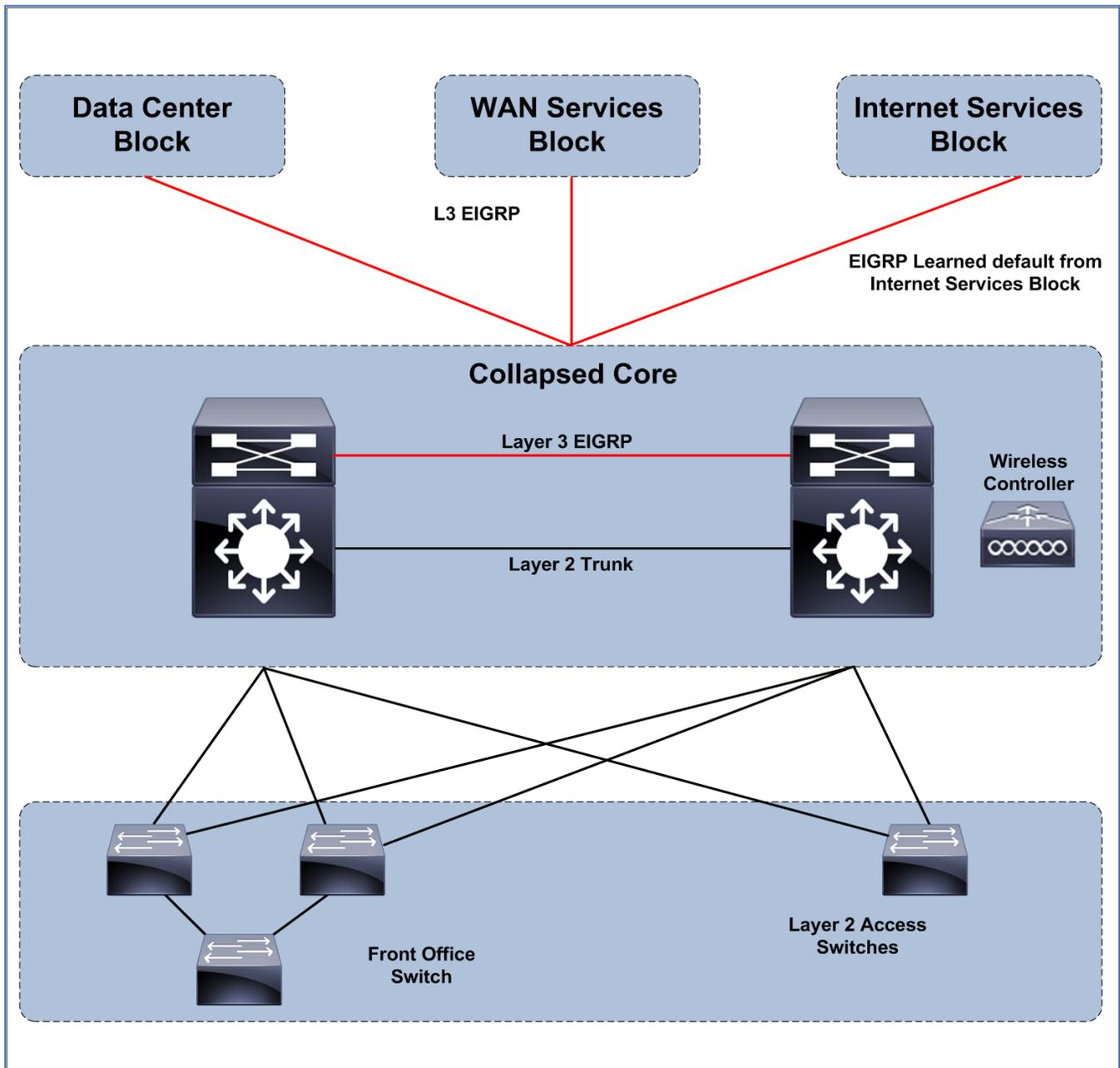
The current campus core is based on collapsed core architecture. Saturn has an isolated (Airgap) network for its critical industrial systems. Since the campus core evolved through time, so it is not uncommon to see delay-chained switches throughout the campus infrastructure. The access switches do not support any overlay technology and MEC is only supported on the campus core switches.

## Current Functional Specification Summary

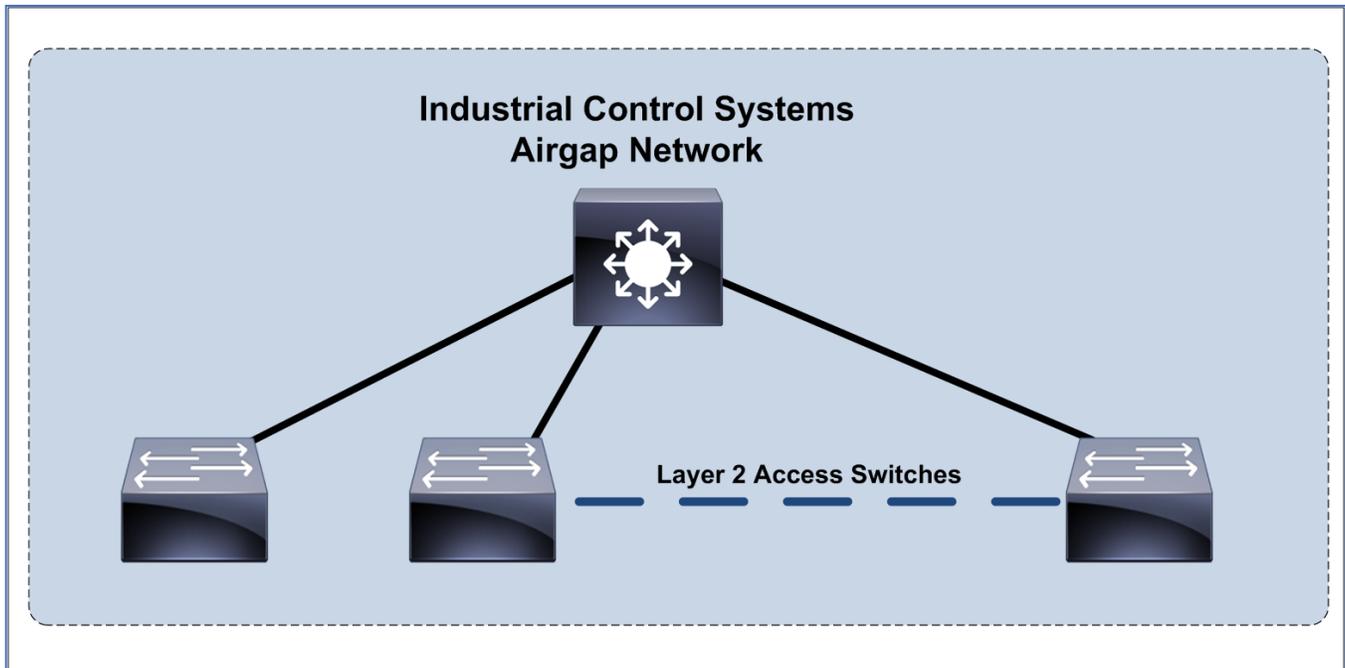
- All VLANs are allowed on Layer 2 trunks between core nodes
- Access Layer runs layer 2 and all VLANs span all access switches
- MST with two instances
- The core switches run VRRP for all VLANs with approximately half of the VLANs active on core switch 1, with the others active on core switch 2.
- EIGRP between core nodes and other service blocks run on a dedicated Layer 3 link
- Anycast DNS servers are connected to each core switch to provide highly available name resolution services for the campus and data center
- Wireless APs are currently bridging all traffic to the Layer 2 Switches.
- The industrial Control System network is currently an isolated (Airgap) environment with a single Layer 3 core switch and numerous Layer 2 access switches running 802.1d STP.

## Topologies

### Initial Campus Overview Diagram



## ICS Network Diagram



### Wireless

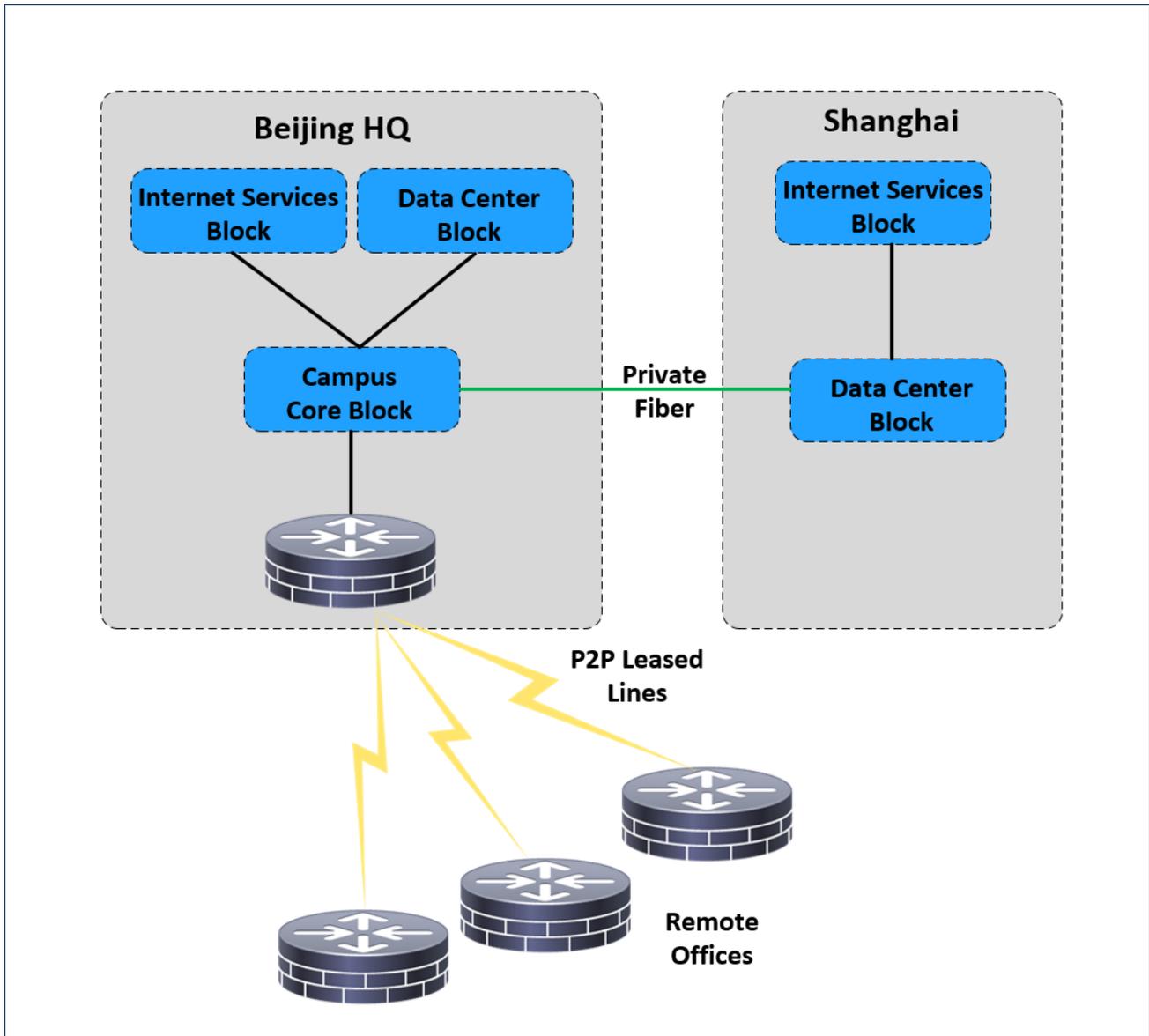
The current Saturn wireless deployment is no longer fit for purpose, and consequently the Saturn IT department is now looking to update the experience offered through their wireless network. Saturn provides wireless connectivity only at their main campus in Beijing and within their big warehouse in Shanghai, and needs to support some legacy (802.11b only) handheld terminals. User Complaints are common around slow connectivity and/or disconnections, and inability to use better speeds and features.

### Current Functional Specification Summary

- No user segmentation (Everyone can access all the campus resources)
- No guest accesses
- Legacy APs and controllers are being used (Support for 802.11a/b/g only)
- Current AP density does not support the continuous growth of wireless clients in the network

## WAN

### WAN Diagram



The current WAN environment consists of multiple point-to-point leased lines to small routers in each of our remote offices. Currently to add a site a new router is required along with a circuit order and reconfiguration of the campus core router. EIGRP is the routing protocol in use between our campus location and remote offices. Each of the leased lines is T1 (1.544 Mbps) speed or less.

### Current Functional Specification Summary

- EIGRP is the routing protocol between the hub and remote sites
- P2P leased lines are T1 speed or lower
- As number of remote sites increase, additional lines and routers are required
- Routers are preconfigured by campus IT and installed by local users at the remote sites
- If a leased line fails, there is no backup path available and the site becomes isolated.

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**Question 1:**

Which additional piece of information about the existing data center is needed to decide if the current data center can support the pilot test?

- A. VRF support on current network devices
- B. Detailed QoS requirement for the new pilot systems
- C. System bandwidth requirement
- D. EIGRP AS number and configuration detail
- E. Whether CAPEX is available to purchase new network devices

Answer:

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**Question 23:**

Which action do you recommend to resolve the performance issues with the network shared drive?

- A. Replace DMVPN with GERVPN and enable QoS on the interfaces
- B. Deploy DMVPN on the MPLS transport and enable QoS on all IPsec tunnels
- C. Order QoS services from the MPLS service provider to all locations and enable QoS on these links
- D. Enable QoS on the DMVPN headend routers and remote office routers
- E. Adjust the TCP MSS on the DMVPN headend routers and remote office routers

Answer:

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**YOU HAVE REACHED THE END OF THIS SECTION**

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