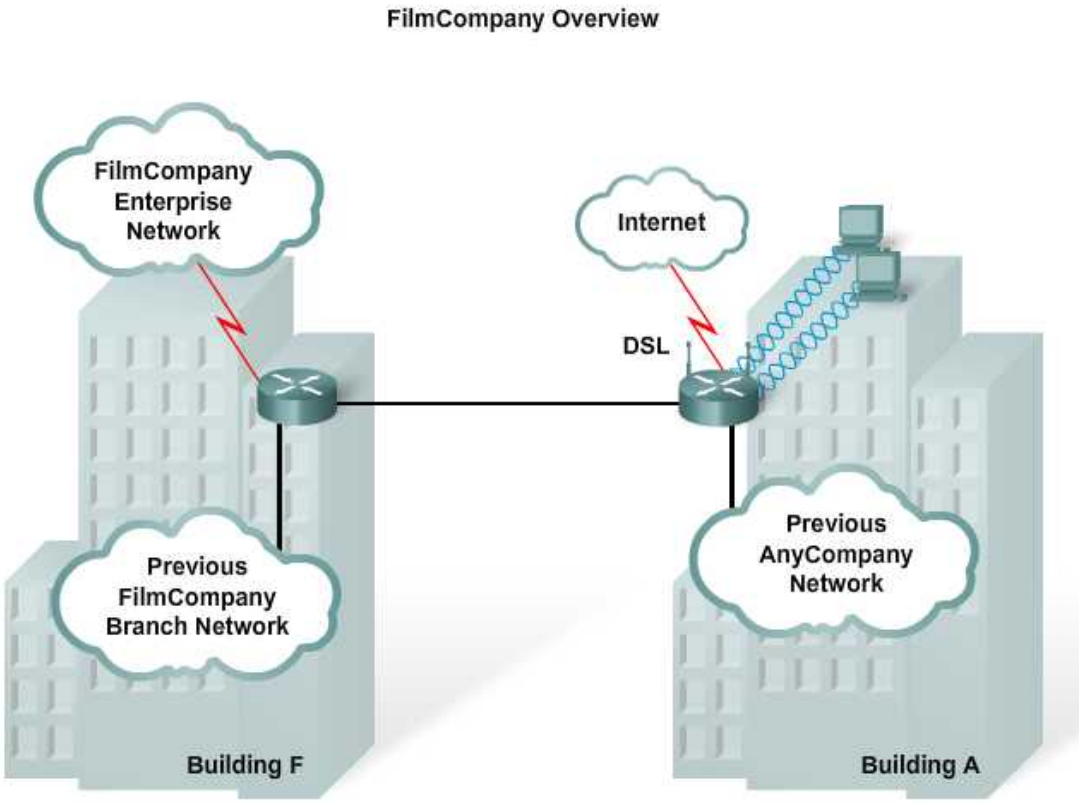
FilmCompany Story

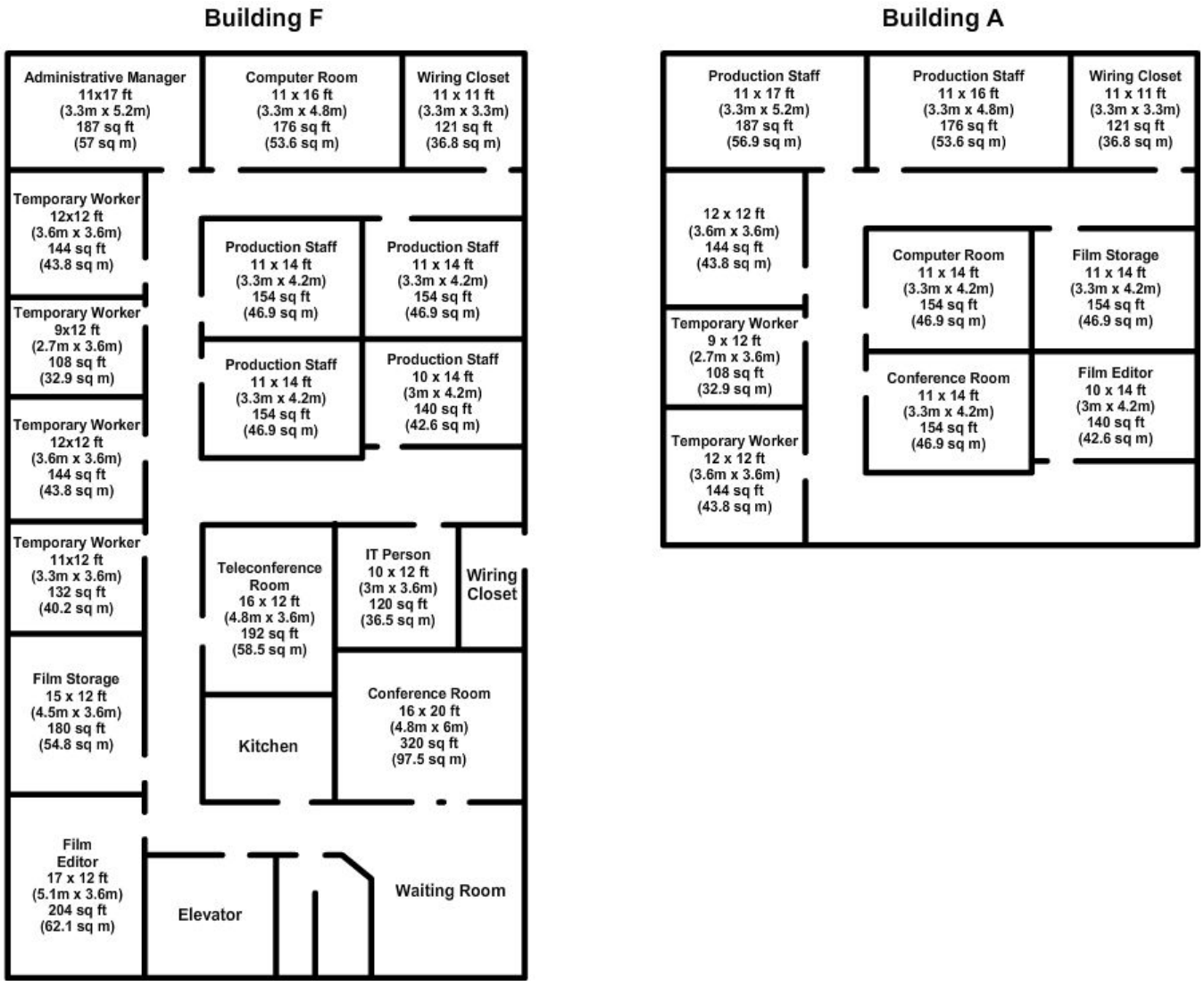
FilmCompany recently purchased AnyCompany, a smaller video firm with production expertise in sports videos. FilmCompany needed the additional staff and facilities to support a new contract with the StadiumCompany. The two branches of the FilmCompany are located in the same office park. A LAN interconnects the networks. Most of the production personnel have been consolidated in the original FilmCompany branch office, located in Building F. The web team is also located in this building. The majority of the administration, sales, and management functions are supported in the original AnyCompany office located in Building A. When adjacent office space becomes available, these groups will be consolidated.



Note: The scope of this case study is the network design for the original FilmCompany branch office. This branch is referred to as the FilmCompany in this case study. The network for the entire FilmCompany is referred to as the FilmCompany enterprise network.

The two groups are of the FilmCompany are initially in separate buildings. After office space is available, these groups will be consolidated.

FilmCompany Floor Plans



FilmCompany Background

FilmCompany has just been awarded a substantial video support contract by the StadiumCompany, resulting in a business growth of around 70 percent.

FilmCompany will film events and provide video services to the stadium customers. The video services include live feeds and pre-recorded videos available from a web server. When the next sports season starts, five to eight FilmCompany people will be at the stadium for each event.

FilmCompany will manage all of the video services and provide immediate support when there are problems. StadiumCompany management expects FilmCompany to manage the video stored on the StadiumCompany server. Video needs to be available as both live and recorded feeds from the StadiumCompany website. StadiumCompany also wants FilmCompany to manage all of the video services and to provide immediate support when there are problems. Timely support is essential because if the video services are not available during a sporting event or concert, the stadium can lose revenue and customer confidence.

FilmCompany is concerned about the ability of the existing Internet link to the stadium to provide reliable communications of media content back to the production suites in Building A. The FilmCompany IT staff is also concerned about whether its internal network is able to support high-volume, real-time video delivery or the types of services that the stadium requires. FilmCompany believes it may need to upgrade its network.

FilmCompany thinks that the preferred way to support the stadium may be to connect directly to the stadium network to transfer files, monitor video performance, and manage the video in real time. StadiumCompany indicates to FilmCompany that the stadium network is going through a redesign process to update it and to improve and increase customer service. FilmCompany meets with NetworkingCompany, the company who is developing the new network design for StadiumCompany, and decides to work with them for their network redesign.

As a member of the network design team for NetworkingCompany, you will investigate the existing network of FilmCompany. You will plan, design, and prototype the upgrades necessary to enable the branch to support this growth in business.

Interview with FilmCompany on Current and Future Organization

The following transcript is from your interview with the FilmCompany branch manager, Kevin Lim.

Kevin Lim: I am the branch manager of FilmCompany. I am very glad that we have hired you to help us plan and design our network upgrade. Our recent contract with the sports stadium requires a significant upgrade to our capabilities. I understand that you have already been supplied with a list of our current staff and information about the network.

You: It is nice to meet you, Kevin. We are looking forward to working on this project. Yes, I have information about your current staff and network. We will be reviewing the current network to define a baseline of its performance as a metric on which to design the upgrade. There are some details we should discuss to clarify your requirements for the new contract. First, what are the business goals you want this network upgrade to support? This will help us to understand the scale of this project.

Kevin Lim: When this stadium contract is up and in full production, it will increase our business by 70 percent.

You: Where specifically do you see this growth?

Kevin Lim: Financially, we hope to achieve positive cash flow from the stadium contract within six months, and increase our gross revenue by 75 percent within 18 months. My technical staff projects that the data traffic across our network will increase by 80 percent as we provide video services to the StadiumCompany. The increased revenue is a result of the new contract. We hope that the network upgrade reduces unit production costs by 15 percent over six months, and 20 percent over 12 months.

You: How will you know if your business expectations are being achieved?

Kevin Lim: We have given that some thought and are considering surveying the customer monthly. Our goal is to achieve a satisfaction measure of at least four on a scale of five within four months after upgrade. We have also set targets of responding to 90 percent of customer non-live media production requests within 12 hours, and 100 percent within 18 hours. We want to be able to meet customer live media production targets 97.5 percent of the time.

You: Do you see a significant increase in staff and any changes in how they carry out their work in achieving these targets?

Kevin Lim: We are looking to hire up to six temporary and part-time production staff and at least one IT and communications technician. The network is a critical component of the way we do business, and it will need looking after.

You: Where do you see these staff being located?

Kevin Lim: We currently have the majority of our staff in two buildings in this office park. We plan to consolidate our staff and facilities into Building F. I expect that initially we will have one or two production people located at the stadium, with an additional six to eight staff members at the stadium when there is an event we are supporting. A fast reliable network link to the stadium is very important. All pre- and post-production work will occur on our premises using the communications link from the stadium. Staff working at both locations will probably use a wireless connection here in the office.

You: Thanks for that information. It is important to know those details. What targets do you see the network upgrade project meeting?

Kevin Lim: We do have a very tight budget. We need to reuse at least 75 percent of the existing network components, and we would like to reuse all of it. Our time to production is very important too. We see a successful project being one where the network is in full production meeting the deadlines of the StadiumCompany. And of course, the network has to perform!

You: We have examined your current network equipment and cabling. It seems to be capable of being scaled to support the new requirements. During the design phase, we will prototype the network load and adjust the design, if necessary.

Kevin Lim: What about reliability?

You: After you consolidate your personnel in one building, you can use redundant links and technology to ensure high availability to the appropriate resources. We will look at that in more detail during the network design. We can also look at mean time to failure under specified load conditions for all network components. There will be network monitoring so that your network personnel can identify and resolve issues. Are there any specific network security issues that you feel need attention?

Kevin Lim: The media content is very valuable. We cannot have the network go down because of a virus or something. What do you recommend?

You: We can include in the network design the means for all unauthorized network intrusions to be intercepted, prevented, logged, and reported. Your network technician will have a role here.

Kevin Lim: Is there anything else I can tell you at this time?

You: I would like to recap the business goals for the FilmCompany. Based on our conversation today, and my discussions with your staff, I understand that your prioritized business goals are:

1. upgrade the network to support 80% more traffic
2. provide a fast reliable link between FilmCompany facilities and the StadiumCompany network
3. implement a highly available network
4. continue to support wireless access at FilmCompany facilities
5. implement QoS to support the video applications
6. implement network monitoring and security

Is this list correct?

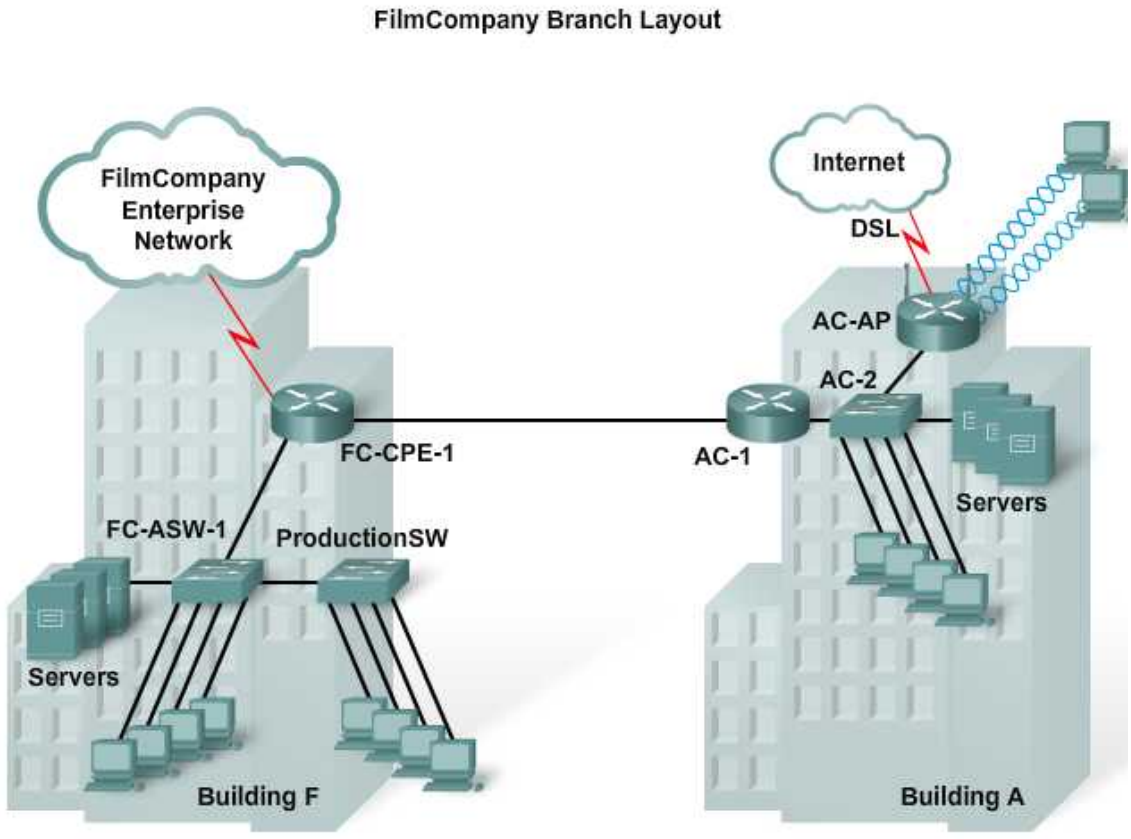
Kevin Lim: Yes, that list summarizes our goals. At this time, I would like you to concentrate on the top 4 goals.

You: I will make that our focus. I do not have any more questions at this time. Thank you for taking the time to meet with me.

FilmCompany Network and Topology

The FilmCompany branch network has grown without much planning. The LAN cabling in both offices is Cat5e Ethernet. The office complex provides an Ethernet link between the two buildings. Because of the recent acquisition of AnyCompany, the addressing and naming are inconsistent. The combined network infrastructure has not been optimized or redesigned. It is basically a flat network design with minimal redundancy. A small wireless LAN is currently only used occasionally by a few project managers with laptops and by guests at Building F. FilmCompany believes that the WLAN may be used more regularly when the StadiumCompany contract work starts because the additional mobile and contract workers will require network access. In addition, FilmCompany plans to consolidate all their staff and resources in one building.

Remote access into the FilmCompany network is provided through an ADSL Internet link terminating in Building A. There are currently two FilmCompany staff onsite at the stadium. The StadiumCompany provides them office space in the stadium management offices.



The current network equipment includes:

- Two 1841 routers (FC-CPE-1, AC-1)
- Three 2960 switches (FC-ASW-1, FC-ASW-2, ProductionSW)
- One network and business server
- One Linksys WRT300N wireless router (AC-AP)
- One ADSL modem (Internet access)

The current network has two VLANs.

The General VLAN serves the general office and managers, including reception, accounts, and administration. It consists of 12 PCs and two printers. The General VLAN uses this addressing:

- Network 10.0.0.0/24
- Gateway 10.0.0.1
- Hosts (dynamic) 10.0.0.200 – 10.0.0.254
- Hosts (static) 10.0.0.10 – 10.0.0.20

The Production VLAN serves the production suites and provides networking for the media development and storage. It consists of nine high-performance workstations, five office PCs, and two printers. The Production VLAN uses this addressing:

- Network 10.10.0.0/24
- Gateway 10.10.0.254
- Hosts (dynamic) 10.10.0.100 – 10.10.0.200
- Hosts (static) 10.10.0.1 – 10.10.0.99

Design Considerations

Here are some design considerations to consider for the FilmCompany expansion.

Capacity/Scalability

- Addressing and naming to be easily scaled

Future technologies

- Possibility of greater mobile and converged network services

Network security

- DMZ
- NAT
- Filtering
- Separate management VLAN
- Network device passwords and access

Redundancy

- Access switches and links
- Server farm design

QoS

- Required for video streaming
- Future implementation of voice over data network system

