# **CCDP-ARCH**

# Section 11 Content Networking

As a designer, content networking technologies allows you to intelligently distribute content throughout the network, thereby reducing WAN bandwidth requirements. For example, a user could open a web browser and point to a particular site. A content networking component, called a "cache engine," might already have that site's content stored locally. Therefore, the cache engine satisfies the user's web request locally, without burdening the WAN.

The flash cards in this section challenge you to recall the components of the Cisco content networking solution and the functions of these components. The networking components all have an appropriate place and use within a network. You are therefore required to identify where to deploy various content networking components. Finally, you must identify appropriate content networking components to use for specific types of content (such as web, e-commerce, or streaming media).

List the five components of the Cisco content networking solution.

Content Networking

# Question 2

Content caching is a component of the Cisco content networking solution. Define the function of content caching.

#### **Question 1 Answer**

The Cisco content networking solution contains the following components:

- **1** Content caching
- 2 Content switching
- **3** Content routing
- 4 Content distribution and management
- 5 Intelligent network services

#### **Question 2 Answer**

Content caching stores content (such as graphics from a web page) in a cache engine. When a user requests content, rather than retrieving the content over the WAN, the content engine services the request locally if the content engine has the content. If the content engine does not have the content stored locally, it retrieves the content over the WAN and stores it locally so it can service future requests for that content.

Describe the benefit of content switching in a content networking design.

Content Networking

## **Question 4**

Identify an appropriate environment in which to deploy content routing.

#### **Question 3 Answer**

Content switching load balances requests across multiple content engines or servers that contain one content agent or server. As a result, content switching contributes to fault tolerance.

#### **Question 4 Answer**

Content routing is appropriate when users in multiple locations might be requesting the same content, and when the content exists in multiple locations. Content routing automatically locates the "best" content location for each client to use.

# What benefit does the Cisco Content Distribution Manager (CDM) offer?

# **Question 6**

Where should you locate reverse proxy servers in a content networking design?

#### **Question 5 Answer**

The Cisco Content Distribution Manager (CDM) intelligently pushes content to geographically dispersed content engines. These content engines then serve up the content to local clients, thus reducing bandwidth demands on the WAN.

#### **Question 6 Answer**

Reverse proxy servers should be located in a *server farm*. The purpose of reverse proxy servers is to offload server content, thereby reducing demands on individual servers.

In the Cisco content networking solution, how does transparent caching differ from proxy caching?

Content Networking

# **Question 8**

Content routing directs user requests for content to an appropriate content engine. List the two modes of content routing.

#### **Question 7 Answer**

Transparent caching dynamically intercepts requests directed outside of the network and redirects those requests to a local content engine. However, proxy caching requires that a user's application (such as a browser) point directly to the content engine.

### **Question 8 Answer**

The two modes of content routing are

- 1 Direct Mode—A user sends out a DNS request, which is forwarded to a local content router. The content router forwards the DNS request to multiple content routing agents at different locations, and the first content routing agent to respond is deemed the "best" site. The user's DNS request is then resolved to the IP address of the "best" site.
- **2** WCCP Mode—The Web Cache Communication Protocol (WCCP) allows a router to determine whether a request should be sent directly to the destination, or if it should be redirected to a content engine. If the content engine does not have the requested content, it retrieves the content and has it available for subsequent requests.

What content networking component uses Self-Organizing Distributed Architecture (SODA)?

> Content Networking

# **Question 10**

According to a Cisco best practice for content network design, how much storage space (measured in hours) is recommended for a content engine to produce a significant bandwidth savings?

#### **Question 9 Answer**

The Cisco *Content Distribution Manager (CDM)* uses the SODA to keep track of what content is located on which content engine.

# **Question 10 Answer**

Cisco recommends 24 to 72 hours worth of storage space on a content engine to produce significant bandwidth savings.

You are using content networking for webcaching purposes. Where should you place content engines?

> Content Networking

# **Question 12**

You are designing a content network to support streaming media. Why might your design be a good candidate for a Cisco CDM?

#### **Question 11 Answer**

Content engines should be strategically placed to prevent unnecessary WAN access. For example, remote offices are often appropriate locations for content engines because content engines allow much of the content to be served up locally.

# **Question 12 Answer**

A CDM is often applicable for streaming media applications because it can intelligently push the content to remote content engines. Those content engines can then serve up the content to local users.