2007 VANGUARD NETWORKS OVERVIEW of COURSE OFFERINGS

Vanguard Basics Courses

Vanguard Products *Basic Course*		**Vanguard Certification:** *Certificate of Completion*	**Duration:** 2 – 3 days, classroom
AUDIENCE	**PREREQUISITES**	**COURSE DESCRIPTION**	**COURSE OBJECTIVES**
SALES & MARKETING SALES ENGINEERS INTERNAL AND EXTERNAL PARTNERS / CUSTOMERS	Working Knowledge of IP and networking technologies	This course focuses on the basic requirements of Vanguard networking products that will allow them to operate properly in a variety of networking situations.	Upon completion of this course, AUDIENCE will gain knowledge to: • Create and install operating software components • Save and restore configurations (CMEM) • Derive and input the parameter values required to allow a Vanguard device to Operate as a: • Multiservice Access Device • IP Router
TOPICS			
1. Vanguard Hardware Upon successful completion of this module, you will be able to describe Vanguard routers and features, daughter cards, option cards, etc. **2. Vanguard Management** Upon successful completion of this module, you will be able to: • Discuss what Software Image is available for each platform. • Describe a Vanguard application package. • Discuss what information is necessary when choosing a package. • Identify where the Software can be located.	**3. Vanguard Software** Upon successful completion of this module, you will be able to: • Discuss what Software Image is available for each platform. • Describe a Vanguard application package. • Discuss what information is necessary when choosing a package. • Identify where the Software can be located.	**4. Basic Call Control** Upon successful completion of this module, you will be able to: • Explain three methods of placing a call in a Vanguard. • Describe the method in which the Vanguard routes a call request through a Vanguard network. • Discuss incoming call processing for PAD, switched, and CUD calls. Describe the two methods for accessing the Vanguard CTP. **5. Basic Diagnosis and Troubleshooting** Upon successful completion of this module you will be able to diagnose and troubleshoot various router issues.	**6. SNA** Upon successful completion of this module, you will be able to: • Differentiate local or remote devices • SDLC polling • TPAD to HPAD functions & application **7. Voice** Upon successful completion of the module, you will be able to discuss and identify • Voice Hardware and Technology include a SIP Introduction • Voice Over Frame Relay or IP • Voice Configuration Basics • Voice Switching Configurations

Vanguard Advanced Courses

Vanguard Products Advance Networking Course		Vanguard Certification: *Certificate of Completion*	Duration: Varies based on topics covered; classroom
AUDIENCE	**PREREQUISITES**	**COURSE DESCRIPTION**	**COURSE OBJECTIVES**
SALES ENGINEERS INTERNAL AND EXTERNAL PARTNERS / CUSTOMERS	Vanguard Products Basics	This course focuses on the advanced concepts of Vanguard networking products that will allow them to be integrated into next generation networking environments like, VPNs and MPLS. *This course focuses on Frame Relay, IP networks, and next generation networks like, VPN and MPLS.*	Upon completion of this course, AUDIENCE will gain knowledge to: • Use advanced routing protocols in network designs • Site-to-Site VPNs • Implement QoS in IP Networks with RED/WRED and Traffic Shaping CbWFQ • Operate as: • Multiservice Access Device • IP Router • Customer Edge (CE) Device in MPLS networks • Verify that connections are operational through the use of statistics, alarms and reports. • Troubleshooting Highlights

TOPICS

1. Advanced Networking	2. IP VPN/Network Security	3. LAN (LAN View) & 4. (WAN View)
• Backbone concepts (FR vs MPLS) • Layer 2 Access Protocols (FR, PPP/MLPPP, ISDN, ATM) • Migration from F/R to MPLS • Integrating legacy applications into Next Gen Networks (NGN)	• IPSec / 3DES, AES • Access Control • Advanced IP Features QOS • NAT and PBR • Advanced Features of: BGP, OSPF, RIPv1, RIPv2, Connectivity, SDLC configuration / Statistics	• LAN Functional Overview • Internal Architecture • IP Routing • LAN Connectivity • WAN View Configuration

Vanguard Products Advance Voice Course		Vanguard Certification: *Certificate of Completion*	Duration: Varies based on topics covered; classroom
AUDIENCE	**PREREQUISITES**	**COURSE DESCRIPTION**	**COURSE OBJECTIVES**
SALES ENGINEERS INTERNAL AND EXTERNAL PARTNERS / CUSTOMERS *Individuals who are responsible for operation and management of a Vanguard Series network*	Vanguard Voice Basics	This course focuses on advanced features of Vanguard networking products that will allow them to operate properly in a variety of networking situations, e.g., Frame Relay and MPLS. The course also provides an understanding of the next generation of IP Telephony technology, such as SIP based voice solutions.	Upon completion of this course, AUDIENCE will gain knowledge to: • Packet voice technology • VoFR • VoIP • IP Telephony • H.323 • SIP • Basic IP Telephony design using: • Gateways • Softswitches • SIP Servers • IP handsets

TOPICS

1. Voice Over IP • VoIP Applications • VoIP Applications over Frame Relay • SOTCP Connections • VoIP Configuration	**2. Packet Voice technology** • H.323 Voice designs • SIP Voice solutions • Hosted vs. on-site

Vanguard Products IBM / SNA		Vanguard Certification: *Certificate of Completion*	Duration: Varies based on topics covered; classroom
AUDIENCE	**PREREQUISITES**	**COURSE DESCRIPTION**	**COURSE OBJECTIVES**
SALES ENGINEERS INTERNAL AND EXTERNAL PARTNERS / CUSTOMERS *This course is designed for pre and post sales engineers, data communications managers and IT technical specialists responsible for network design, implementation and maintenance of the network, host, and remote peripheral equipment.*	Students should have a basic understanding of data communications and networking concepts.	This course covers both SNA (Systems Network Architecture) and Non-SNA protocols that are commonly used in Financial and Retail network applications. The student will learn both why and how these communications protocols are implemented, configured and used in conjunction with the Vanguard Networks router hardware and software features.	The objective of this course is to provide the student with a technical understanding of how SNA and Non-SNA protocols are used both in the data center and at remote locations to connect peripheral controllers and devices to a centralized host system using SNA. At the end of this course the student should be able to describe the functionality and benefits of how Vanguard networking products support SNA and Non-SNA communications protocols in Financial and Retail applications.

TOPICS

1.0 Advanced SNA Topics: • Protecting Customer Investments • LLC2 to SDLC Conversion • BSC3270 to SNA Conversion • BSC2780 to SNA Conversion • TN3270 Remote Server	**2. Data Link Layer 2 LAN Protocols** • LLC2 Protocol Overview • LAN Timers (Token Ring and Ethernet) • LLC2 to SDLC Conversion	**3. BSC3270 to SNA Conversion** • Conceptual Overview • SNA Session Establishment • SNA LU mapping to DSP/BSC32706. BSC3780/2780 to SNA Conversion • Conceptual Overview • SNA Session Establishment • SNA LU mapping DSP/BSC 3780	**4. TNA3270 Remote Server** • Conceptual Overview • SNA Session Establishment • SNA LU mapping RCP pipes	**5. AS/400 Communication Server** • OS/400 Communications Limitations • IBM 5494 Workstation Controller Overview • AS/400 Communications Controller Overview • LU Type 6.2 Encapsulation

Vanguard LABs

Vanguard Networking LAB		**Vanguard Certification:** *Certificate of Completion*	**Duration:** Varies based on topics covered; classroom
AUDIENCE	**PREREQUISITES**	**COURSE DESCRIPTION**	**COURSE OBJECTIVES**
SALES ENGINEERS INTERNAL AND EXTERNAL PARTNERS / CUSTOMERS	Vanguard Products Basics Vanguard Products Advance	Configuration of a Vanguard in various network environments with or without voice.	Upon completion of this course, AUDIENCE will gain knowledge to: Use advanced hands-on implementation Troubleshooting
TOPICS			
✓ Hands-on setup and troubleshooting of Vanguard routers.			