

Ethernet Backhaul Overview

HOLYOAAE (IPC_122)

HPE course number	HOLYOAAE
Course length	3 hours
Delivery mode	WBT
View schedule, local pricing, and register	View now
View related courses	View now

Emerging 3G and 4G networks reflect two key fundamental changes in wireless networks. The first change is the trend toward an “all IP” network and the second change is a more efficient radio interface resulting in a huge growth in the volume of traffic supported by the air interface. Traditional backhaul using T1/E1 leased lines is no longer economical so new backhaul solutions are being deployed. This course describes the key issues leading to the need for new backhaul solutions and provides an overview of the various backhaul solutions and related technologies. It introduces the backhaul network architecture and reviews technologies such as ATM, DSL, Bonded T1/E1, DOCSIS, Microwave Radio, PON, Carrier Ethernet, MPLS/MPLS-TP, and PBB-TE. A backhaul capacity planning and technology migration scenario is presented, and the course ends with an exercise to test the student’s comprehension of the topics covered.

Why HPE Education Services?

- IDC MarketScape leader 4 years running for IT education and training*
- Recognized by IDC for leading with global coverage, unmatched technical expertise, and targeted education consulting services*
- Key partnerships with industry leaders OpenStack®, VMware®, Linux®, Microsoft®, ITIL, PMI, CSA, and (ISC)²
- Complete continuum of training delivery options—self-paced eLearning, custom education consulting, traditional classroom, video on-demand instruction, live virtual instructor-led with hands-on lab, dedicated onsite training
- Simplified purchase option with HPE Training Credits

Audience

This course is suitable for those looking for a high-level conceptual overview of IP/Ethernet backhaul networks and an introduction to associated technologies.

Course objectives

After completing this course, the student will be able to:

- List the requirements for 3G/4G backhaul
- Describe the challenges for 3G/4G backhaul
- Differentiate between the access and aggregation networks
- Identify the networking options most likely deployed for Ethernet Backhaul (EBH)

- Discuss the role of various technologies in backhaul networks
- Explain benefits of Carrier Ethernet and list various services provided for backhaul
- List the key issues related to migrating to an Ethernet-based backhaul network
- Identify tools and techniques used to seamlessly migrate to EBH
- Compare different backhaul facilities and explain the pros and cons of the available solutions
- Explain where faults in the EBH network may occur, and how these faults are detected and isolated
- Identify the key challenges in sizing backhaul capacity links
- Sketch possible migration path from a T1/E1 based backhaul solution to tomorrow’s IP/Carrier Ethernet

Detailed course outline

Module 1: The “Big Picture”

- What is “Backhaul”?
- Motivation for EBH
- Backhaul requirements
- Backhaul challenges

Module 2: Backhaul options

- SONET transport
- Microwave transport
- Ethernet transport
- Other transport

Module 3: Carrier Ethernet (CE)

- What is it?
- CE service types
- CE connection granularity
- Negotiating a CE service
- EBH backhaul design

Module 4: Key EBH issues

- Migration: Today's BH to tomorrow's BH
- Joint backhaul of 2G, 3G, and 4G traffic
- Emerging all-IP environment
- Timing and synchronization
- EBH operations and management

Module 5: EBH growing pains

- Market evolution
- Bonding techniques
- CE transport options
- TDM-based to Ethernet-based backhaul

Module 6: Deploying and operating an EBH network

- Deployment testing (RFC2544; Y.1731, CFM)
- Fault detection and recovery
- Performance monitoring

Module 7: EBH capacity planning

- Capacity planning process
- Nature of data traffic
- Forecasting subscriber mixes
- Sizing EBH links

Module 8: Summary

Learn more at
hpe.com/ww/learnnfv

Follow us:



© Copyright 2016 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

Microsoft is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries. The OpenStack Word Mark is either a registered trademark/service mark or trademark/service mark of the OpenStack Foundation, in the United States and other countries and is used with the OpenStack Foundation's permission. We are not affiliated with, endorsed or sponsored by the OpenStack Foundation or the OpenStack community. Pivotal and Cloud Foundry are trademarks and/or registered trademarks of Pivotal Software, Inc. in the United States and/or other countries. Linux is the registered trademark of Linus Torvalds in the U.S. and other countries. VMware is a registered trademark or trademark of VMware, Inc. in the United States and/or other jurisdictions. All other third-party trademark(s) is/are property of their respective owner(s).

c04964967, October 2016, Rev. 3