Essential HSPA and HSPA+

Course overview

Description
HSDPA (High Speed Downlink Packet Access) and HSUPA (High Speed Uplink Packet Access) provide speeds of up to 14Mbps downlink and 5Mbps uplink. This theory-based course provides an overview of the 3GPP R5 and R6 HSDPA/HSUPA standards and the technologies which are involved. The HSPA+ R7 enhancements are also covered.

Who will benefit?
Anyone working with HSPA

Prerequisites
Essential UMTS.

Objectives
By the end of the course delegates will be able to:

- Explain the relationship between HSPA and UMTS.
- Describe the benefits of HSPA/HSUPA+
- Explain the HSPA/HSUPA+ technical enhancements.
- Explain packet flows in HSPA/HSUPA+
- Recognise the migration issues involved with HSPA/HSUPA+

Duration: 2 days

Contents

UMTS review
UMTS architecture, components, interfaces, protocols, W-CDMA, standards, 3GPP R5, 3GPP R6, evolution to HSDPA and HSUPA.

HSPA basics
What is HSDPA, what is HSUPA, key features, system capacities, data rates, delays. Key concepts: Adaptive modulation and coding (AMC), QPSK, 16QAM, HARQ, multiplexing, subframes.

HSPA channels
Logical, transport, physical channels, dedicated vs. shared channels, HS-PDSCH, HS-SCCH, HS-DPCCH, code multiplexing. E-DCH, Enhanced DPCCH.

MAC architecture

HSPA migration
HSPA in the Radio Access Network (RAN), reuse of existing UMTS components, changes required, impact on lub/lur interfaces, new and modified NBAP procedures, backwards compatibility.

Packet flows
Packet data session setup, simultaneous voice and data, QoS, TCP flow control, WCDMA packet scheduler, mobility procedures.

HSPA+ (3GPP R7 and beyond)
What is evolved HSPA? Speeds. Multiple Input Multiple Output (MIMO). Optional all IP architecture. R8 and LTE.

Generic training
Generic training compliments product specific courses covering the complete picture of all relevant devices including the protocols “on the wire”.

“...because it covers the WHY, not just the how."  
W.G. – BBC

Small class sizes
We limit our maximum class size to 8 delegates; often we have less than this. This ensures optimal interactivity between delegates and instructor.

“Excellent course. The small class size was a great benefit...”  
M.B. - IBM

Hands on training
The majority of our courses use hands on sessions to reinforce the theory.

“Not many courses have practice added to it. Normally just the theoretical stuff is covered.”  
J.W. Vodafone

Our coursework
We write our own courses; coursework does not just consist of slides and our slides are diagrams not bullet point text.

“Well presented & lots of it.”  
P.A. Livingston

Customise your course
Is there more than one of you? Please contact us if you would like a course to be customised to meet your specific requirements. Have the course your way.

“I was very impressed by the combination of practical and theory. Very informative. Friendly approachable environment, lots of hands on.”  
S.R. Qinetiq

Our clients
You can be reassured that when you receive training from us, you are in good company. Clients range from service providers and large multinationals down to one man businesses.

“Material covered is relevant to ISP operation, more so than many vendor courses.”  
A.F. LINX

What our customers say
“Big thanks to SNT. I found this course to be well planned and delivered by your professional staff.”  
S.H. Deutsche Bank AG

01737 821590  
www.snt.co.uk