

# Infiniband Concepts & Solutions

**Solution  
Technology**



This seminar is designed to provide a comprehensive summary of the InfiniBand architecture. The course takes the student through the documentation and simplifies all aspects of the InfiniBand specification. You will learn the required basics to fully understand InfiniBand and the application aspects in order to construct an InfiniBand based System Area Network.

## **InfiniBand Architecture**

Why a new I/O Interconnect  
Architectural Features and Model  
System Area Networks  
Subnets, Switches & Routers

## **IBA Layered Architecture**

Upper Layer  
Transport Layer  
Network Layer  
Link Layer  
Physical Layer

## **Verbs & Verb Concepts**

HCA & TCA  
Queue Pairs  
Work Queue Elements  
Completion Queue  
Memory Regions

## **Management Concepts**

Subnet Manager  
Subnet Management Agent  
General Service Agent  
Power Management

## **Transport Functions & Services**

Reliable Connection  
Unreliable Connection  
Reliable Datagrams  
Unreliable Datagrams  
Raw Packets  
Send & Atomics  
RDMA Read/Write

## **Addressing**

Global IDs  
Local IDs  
Multicast IDs  
Unicast IDs  
Globally Unique Identifiers

## **Switching & Routing Headers & Packet Formats**

GRH, LRH, BTH & ETH Headers  
Data Packet Formats

Segmentation of Data

## **Physical Components**

Connectors & Cabling  
1X, 4X, 12X  
Copper & Optical Transmission

## **Channel Adapters**

Memory Translation & Protection  
Virtual Lanes  
DMA & Memory Management  
Adapter & Port IDs  
Requirements

## **Other Topics Include:**

I/O Units  
Link & Phy blocks  
Ordered Sets & Control Symbols  
Performance Counters  
Hardware Management  
Baseboard Management  
Partitions  
Simplified Address Resolution

## **Flow Control**

Link Level  
Coalescing ACKs  
Credits and ACK/NAK Protocol

## **IBA Operations**

Abnormal Conditions  
Duplicate Packets  
Ghost Packets  
Invalid or Lost Packets  
Stale Packets  
Connection Protocol  
Error Management  
Typical I/O Transactions  
SCSI RDMA Protocol  
Channel & Memory Semantics  
Memory Binding  
Memory Windows  
Memory Regions

**Who Should Attend:** This seminar is specifically for developers, integrators, managers, marketing personnel, technical writers and others with a need for an understanding of System Area Networks as implemented using InfiniBand technology.

**Prerequisites:** Attendees should have a sound working knowledge of Fibre Channel or have previously completed the "Comprehensive Introduction to Fibre Channel" seminar.

**Course Length:** 2 Days