Brocade’s Mainframe and FICON Presentations and Seminars that are available to Customers and Partners

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Mainframe and FICON 101 Fundamentals – 1-day Seminar
*Really good for personnel new to the mainframe or as a refresher class*
- Mainframe Terminology – it’s unique
- The Mainframe Environment and Brocade’s History with M/F
- Health of the Mainframe in Today’s World
- Mainframe Basics
- System z10 (EC/BC) and zEnterprise z196 and z114
- Data Center I/O Connectivity
- FICON Basics
- Managed Evolution from ESCON to FICON
- Switched-FICON

Mainframe and FICON 201 Advanced Topics – 1-day Seminar
*Follows FICON 101 and is really good for personnel new to the mainframe or as a refresher class*
- Command Mode FICON and High Performance FICON (zHPF)
- Brocade’s 8G Product Portfolio
- Brocade’s 16G Product Portfolio
- FICON Fabric Design Considerations
- Buffer Credits
- Control Unit Port (CUP) and Mainframe Reporting (RMF)
- Protocol Intermix Mode (PIM)
- Virtual Fabrics
- Brocade’s Management Software
- Brocade’s FICON Certification
- Mainframe Resources

SAN Basics for Mainframe Professionals 101 – Part 1 - 1-day Seminar
*This is for mainframe experienced personnel who want to know more about SAN and Fibre Channel*
- Getting Started with FC and FC/SAN Definitions
- Storage Area Networking (SAN)
- Deploying Switched-FICON
- FICON and FICON Fabric Topologies
- A 1st Look Into The Inner Workings and Hidden Mechanisms of FC and FICON

SAN Basics for Mainframe Professionals 201 – Part 2 - 1-day Seminar
- ISLs and Trunking Concepts
- Protocol Intermix Mode (PIM)
- A Deeper Look Into The Inner Workings and Hidden Mechanisms of FICON Fabric Performance
Protocol Intermixed Mode (PIM) – 1-day Seminar
*For anyone who wants to understand intermixed fabric infrastructures*
- Overview of Protocol Intermix Mode (PIM)
- Considerations About Implementing PIM
- Overview of Brocade’s Product Portfolio
- Brocade Infrastructure Support for PIM
  - Capabilities to turn on when using PIM
  - Zoning
  - Prohibit Dynamic Connectivity Mask (PDCM) for FOS 6.4 and earlier
  - Virtual Fabrics (VF)
  - Cascaded FICON and Fibre Channel Routing (FCR/IR)
- Why Customer’s Should Deploy Switched-FICON
- Brocade’s Management Software
- Brocade’s FICON Education and Certification

Why Deploy Switched-FICON – 2 hours
*Good for customers and personnel using direct-attached storage and unfamiliar with switching*
- Point-to-Point versus switched-FICON
- FICON Distance Considerations
- CHPID Considerations
- Reliability and Availability
- Fan In – Fan Out
- Scalability
- Frame flow balancing
- Linux on System z resource sharing

FICON Cascading using 8Gbps DCX Platforms - 1-day Seminar
*This is for mainframe experienced personnel who want to understand FICON Cascading*
- An Understanding of Brocade’s 8Gbps FICON product portfolio
- What FICON Cascading is all about
- Local and Long Distance Cascading
- Inter-switch Links (ISLs) and Inter-chassis Links (ICLs)
- Long Distance Connectivity Using Fibre Channel and FCIP
- The Importance of controlling ISL Link Aggregation and Load Balancing
- The importance of Buffer Credits and how they are used by FC

FICON Cascading using 16Gbps DCX Platforms - 1-day Seminar
*This is for mainframe experienced personnel who want to understand FICON Cascading*
- An Understanding of Brocade’s 16Gbps FICON product portfolio
- What FICON Cascading is all about
- Local and Long Distance Cascading
- Inter-switch Links (ISLs) and Inter-chassis Links (ICLs)
- Long Distance Connectivity Using Fibre Channel and FCIP
- The Importance of controlling ISL Link Aggregation and Load Balancing
- The importance of Buffer Credits and how they are used by FC
**FICON Advice and Best Practices – 1 - 2 days**
*This is for mainframe personnel who want to understand FICON best practices*

- Addressing
- Auto-Negotiation
- Brocade DCX 8510 Director and B65100 Switch
- Brocade FOS 7.0 Notes
- Buffer Credits
- Cabling
- Channel Path Performance
- Connectivity Blades
- Creating Five-9s High Availability Fabrics
- Domain ID
- ESCON
- FICON Hops
- FICON-centric FOS Features Matrix
- Fill Words
- IBM TS7700 Virtual Tape Solution
- Inter-chassis Links (ICLs)
- ISLs and FCIP Links
- Missing Interrupt Handler Primary Time Out Value (MIHPTO)
- Node Port ID Virtualization (NPIV)
- Notes about Transaction Processing Facility (TPF) at 4.1 and below
- Operating Mode
- Optics (SFPs)
- Optionally Licensed Software
- Port Nicknames (Aliases)
- Prohibit Dynamic Connectivity Mask (PDCM) and Port Blocking
- Protocol Intermix Mode (PIM)
- Resource Management Facility (RMF), Systems Automation (SA) and Control Unit Port
- Switch ID
- Switch ID and Switch Address
- Switch Software
- Switching Device Error Detect Time Out Values (ED_TOV)
- Switching Device Resource Allocation Time out Values (RA_TOV)
- Switching Device Time Synchronization
- Switching Devices
- Terradata and FCIP Extension
- Trunking
- Two-byte Link Addressing
- Using Local Switching
- Vendor Switching Cross Reference List
- Virtual Fabrics
- Zoning
- Zoning Names
**Brocade’s 8Gbps DCX Product Portfolio for the Mainframe and SAN – 2 – 6 hours**
*This is good for mainframers (and SAN) who are looking at refreshing/implementing 8Gbps switching*
- Overview of Brocade’s Product Portfolio for SAN and System z
- Why Deploy 8Gbps for your Infrastructure
- Brocade’s Management Software Overview
- Brocade’s 8Gbps Product Portfolio Features and Functionality
- Protocol Intermixed Mode (PIM)
- 8Gbps Technology Improvements from Brocade for System z
- Continuous Improvements for our 8Gbps Product Portfolio
- Brocade Educational Resources for FICON and mainframe users
- Brocade’s Accredited Certification for FICON
- Brocade’s Mainframe and FICON Resources For You To Utilize

**Brocade’s 16Gbps DCX Product Portfolio for the Mainframe – 2 - 6 hours**
*This is good for mainframers (and SAN) who are looking at refreshing/implementing 16Gbps switching*
- A Quick Synopsis of Brocade
- Overview of Brocade’s Product Portfolio for SAN and System z
- Why Deploy 16Gbps for your Infrastructure
- Management Software Overview
- Brocade’s 16Gbps Product Portfolio Features and Functionality
- Protocol Intermixed Mode (PIM)
- 16Gbps Technology Improvements from Brocade for System z
- Brocade Educational Resources for FICON and mainframe users
- Brocade’s Accredited Certification for FICON
- Brocade’s Mainframe and FICON Resources For You To Utilize

**ESCON to FICON Technology Evolution – 90 minutes**
*This is good for mainframers who are upgrading ESCON to now do FICON switching*
- Current I/O environments
- IBM System z positioning about ESCON
- Managed Infrastructure Evolution
- Brocade and Optica technology solutions
- Managed Evolution customer case study
- Long distance extension for storage
- Brocade long distance extension products
- Discussion

**Migrating from M-Series to B-Series – non-competitive – 90 minutes**
*This is good for mainframers who are refreshing/implementing 8G or 16Gbps switching*
- Migrating M-Series infrastructure to a DCX infrastructure
- Migrating M6064 infrastructure to DCX infrastructure
- Migrating M6140 infrastructure to DCX infrastructure
- Migrating Mi10K infrastructure to DCX infrastructure
- Discussion
Differences between M-Series and B-Series Infrastructures – 2 hours to All Day
*This is good for mainframers who are refreshing/implementing 8G or 16Gbps switching*
- M-Series versus B-Series Hardware
  - Blades, ICLs, buffer credits, Local Switching, etc.
- M/EOS versus FOS for FICON
- EFCM versus DCFM for FICON
- Managing cascaded links
- NPIV
- M-Series versus B-Series keyed features
- Discussion

FICON I/O Infrastructure Design Considerations – 2 hours to All Day
*This is good for mainframers who are refreshing/implementing new switching infrastructures*
- FC Infrastructure Connectivity
- Considerations for End-to-End FICON performance
  - CHPID considerations
  - Point-to-Point considerations
  - Link speed considerations
  - ARBff versus Idles at 8G
  - CHPID buffer credits
  - Chassis slot bandwidth considerations
  - Central versus Local switching
  - ICLs and scaling
  - Protocol Intermix Mode (PIM)
  - Data encoding considerations and zHPF
  - Maximum end-to-end link rates
  - Managing ISL Congestion
  - FICON Hops
  - FICON for BC/DR
  - Lossless DLS and DPS
  - Trunking and OpenTrunking
  - Buffer Credits
  - Control Unit Port
  - Managing I/O Evolution
  - Storage Host Adapter considerations
  - Storage Array considerations
  - Fan in and Fan out
  - Overview of FICON infrastructure management

Advanced FICON Seminar for Experienced FICON Customers/Partners – 4 hours to All Day
*This is good for mainframers who want to refresh their knowledge and experience with switched-FICON*
- Recent Events in FICON Evolution
- Why Customers Should Always Deploy Switched-FICON
- Brocade and IBM Partnership and Brocade FICON Portfolio
- FICON Fabric Design Considerations:
Mainframe and FICON Update – 2 hours to All Day
*This is good for mainframers who desire an update on today’s switching capabilities*
- Brocade’s Value to your Data Center
- Customer Situation and Business Impact
- Brocade’s Software and Firmware Status
- FICON Evolution
- FICON Subchannel Sets
- High Performance FICON (zHPF)
- Managed Evolution for System z (ESCON to FICON)
- System z196 and System z114
- z/OS Discovery and Auto Configuration (zDAC)
- Brocade Virtual Fabrics
- Brocade’s 8Gbps Product Portfolio
- Brocade’s 16Gbps Product Portfolio
- FICON Infrastructure Design Considerations
- FICON Technical Planning
- Brocade Education, Certification and Resources

Joint IBM-Brocade Mainframe I/O and FICON Performance Training Seminar
*Advanced training focused on performance and performance management topics*
- FICON Express 8/8S and new zEnterprise I/o features
- Z Discovery and Auto Configuration (zDAC)
- FICON Dynamic Channel path Management (DCM)
- Z High Performance FICON (zHPF)
- RMF Reports used in a FICON Environment
- FICON CUP
- zLinux, NPIV, and FICON/FCP Intermix performance considerations
- GDPS
- Persistent IU Pacing (Extended Distance FICON)
- Brocade FCIP Channel Extension and performance
- Life of a Mainframe DASD I/O
• Buffer Credits-basic, advanced
• Brocade Extended Fabrics and FOS Buffer Credit Recovery Mechanism
• Using Brocade Virtual Fabrics
• Understanding local switching and cut through routing
• Managing ISL’s in Cascaded FICON environments
• Link Loss Budgets and dB loss impact on performance
• Brocade Network Advisor
• Brocade SANHealth in Mainframe environments
• Using Brocade Fabric Watch and Advanced Performance Monitor in Mainframe environments

For highly experienced and qualified mainframe professionals we offer a certification seminar
This should not be considered as a good education format for inexperienced mainframe personnel
The content of the class is pretty advanced

Brocade Certified Architect for FICON (BCAF) Preparatory Certification Seminar – 2 days
*This is good for mainframers who desire to become professionally certified as FICON experts*
*This is advanced materials and not well suited for professionals with less than 1 year of experience*

Day One:
- Module 1 – Course Introduction
- Module 2 – FICON Overview
  - Review relationship between FICON and Open Systems
  - IBM System z and I/O channel subsystem Overview
  - FICON Express features and OSA Express Features
  - ESCON Protocol
  - FICON Protocol
  - Switched-FICON
  - Open Systems and FICON

- Module 3 – Brocade Switching Technology
  - Brocade 8Gbps Technology
  - Brocade 16Gbps Technology
  - The value of 16Gbps Technology
  - 16Gbps Technology Improvements
  - Brocade’s Suite of Management Software

- Module 4 – Design and Migration
  - FCP and FICON Protocol Intermix Mode (PIM)
  - Zoning and creating zones
  - Node_Port ID Virtualization (NPIV)
  - Buffer Credits and Flow Control
  - Chassis Interoperability
  - Fillwords for Gen4 8Gbps switching devices
  - End-to-End Considerations (BCs, Link Rate, Cabling, etc.)
Module 5 – FICON Cascading and Data Transmission Technologies
- Standard Data Transmission Technologies
- Brocade Extension Technologies
- Chassis-to-Chassis connection options
- Configuring FICON for Cascading
- Virtual Fabrics and their use in FICON Fabrics
- Using Protocol Intermix with Virtual Fabrics
- Managing Cascaded Fabrics
- The Prohibit Dynamic Connectivity Mask (PDCM)
- Security requirements for Cascaded FICON

Day Two:
Module 6 – Managing Cascaded FICON Environments
- Managing typical cascaded links
- Brocade Trunking and Device-based Routing (DBR)
- Traffic Isolation Zones (TIZ)
- Managing 3-site cascaded connectivity
- Using PDCMs in cascaded environments
- Providing security for cascaded FICON

Module 7 – FCIP, Data Replication and Business Continuity Networks
- Data Replication Terminology
- Data Replication Technologies
- Brocade’s Extension Hardware
- Using FCIP for FICON Cascading
- Brocade Advanced Accelerator for FCIP
- Compression, encryption and other capabilities for FICON cascading
- Customer case study of implementing Brocade IP and FCIP

Module 8 – FICON Implementation
- FICON Implementation Guidelines
- How to configure a Cascaded FICON fabric

Module 9 – Managing and Maintaining a FICON Environment
- The uses and features of Control Unit Port (CUP)
- How FICON makes use of RMF
- More on buffer credits in a FICON environment
- Brocade Management Software:
  - Network Advisor; Element Manager; and Fabric Manager
  - Advanced Performance Top Talker feature
  - More about port connectivity and using the PDCM feature
- Common troubleshooting issues