z/TPF V1.1

2013 TPF Users Group

High Performance FICON
Improving Performance of Today's z/TPF DASD

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SCP Subcommittee

AIM Enterprise Platform Software
IBM z/Transaction Processing Facility Enterprise Edition 1.1

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Agenda

- What does zHPF do for my z/TPF system?
- How does zHPF work?
- What do I need to exploit zHPF?

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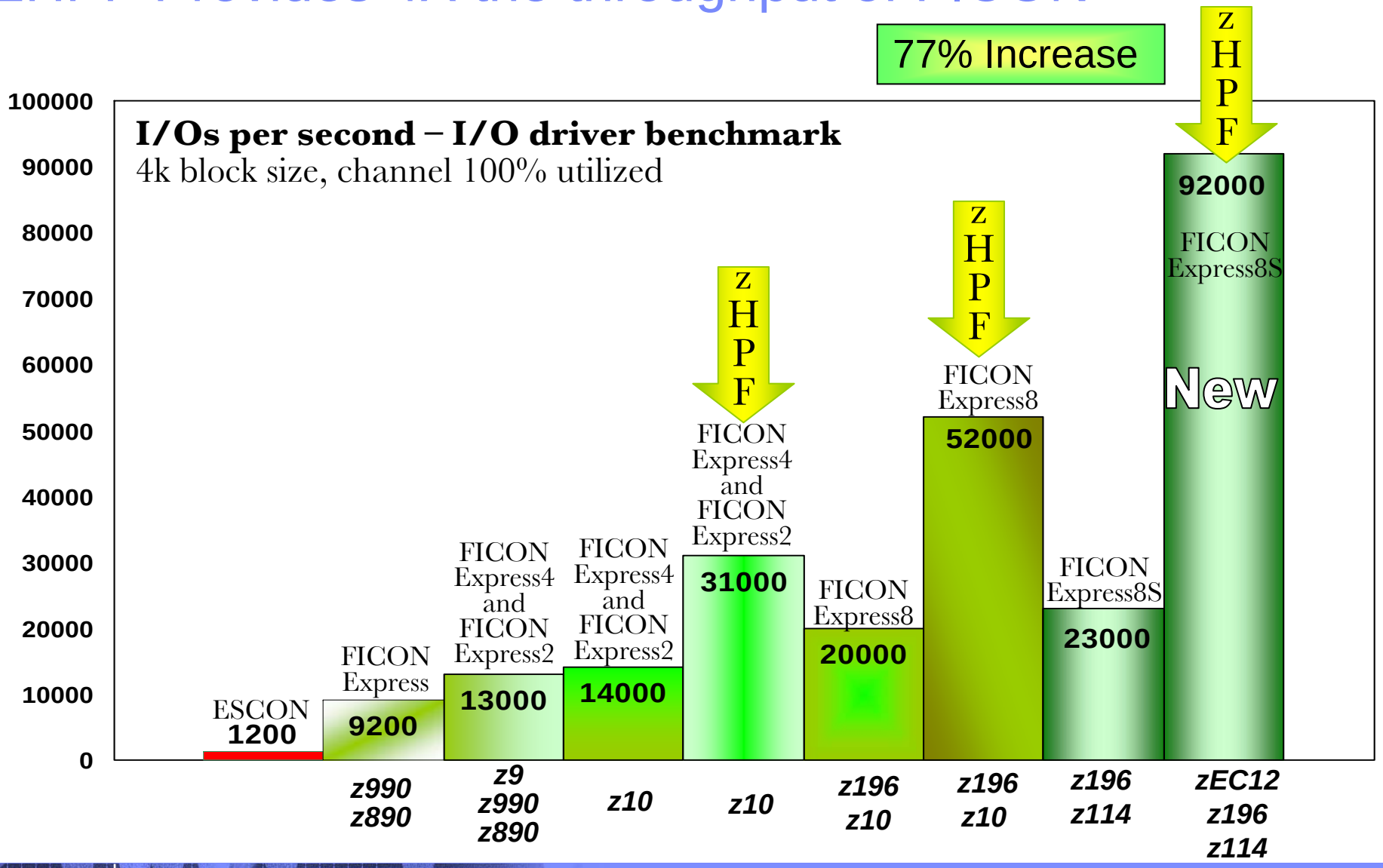
zHPF Provides 4X the throughput of FICON



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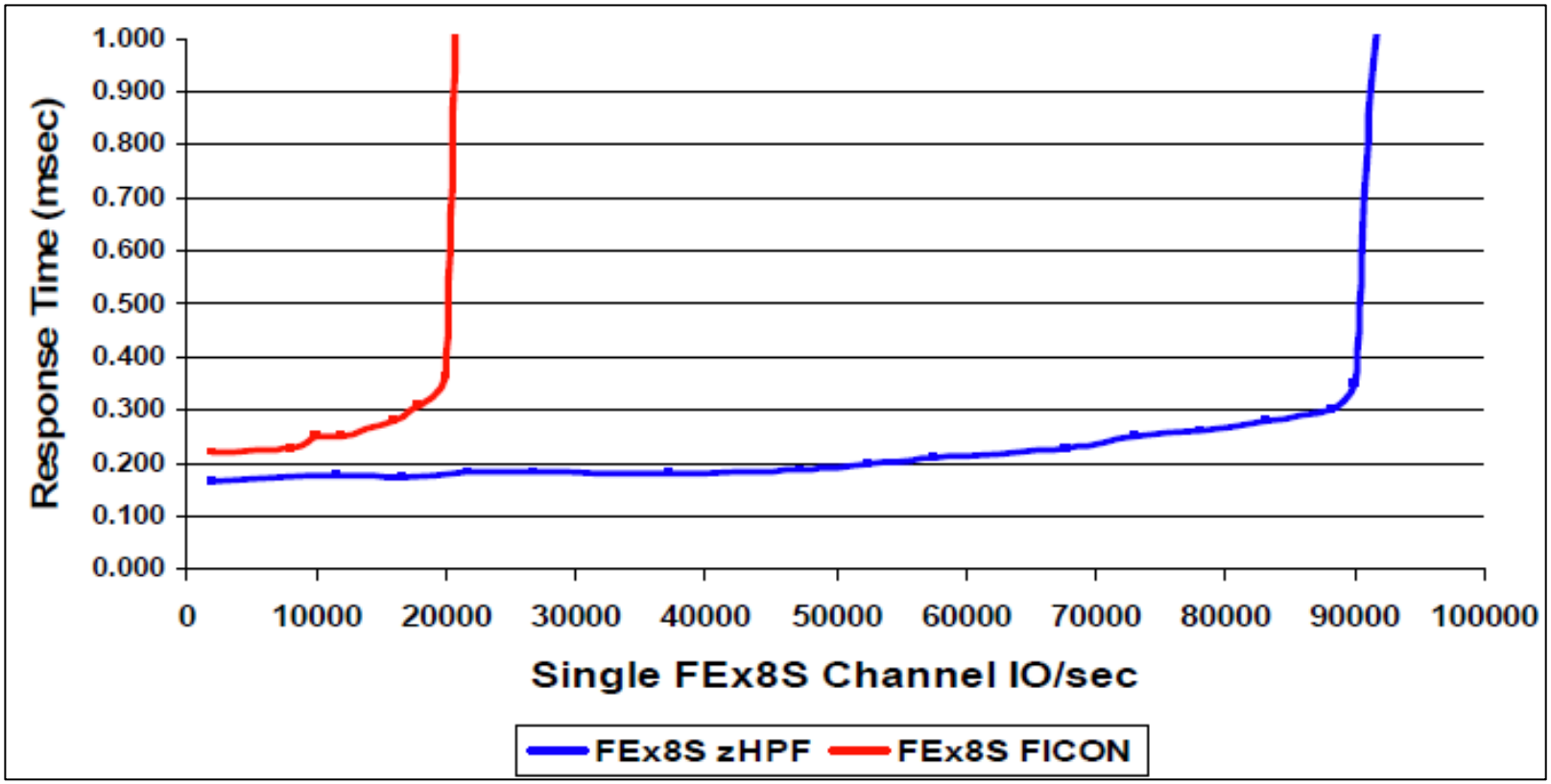
Improved Response Times

Single FICON Express8S channel: zHPF vs FICON READ 4k bytes/IO
Total I/O Response Time vs IO/sec



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How does zHPF work?

- **Uses Fibre Channel Protocol (FCP)**
  - Less chatty than FICON
  - Modern host adapters highly optimized for FCP I/O
- **zHPF I/O requests use Transport Mode**
  - New I/O structures
    - Device Control Word (DCW)
    - Transport Control Word (TCW)
    - Transport Command & Control Block (TCCB)
    - Transport Status Block (TSB)
  - New structures allow zHPF to use FCP

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What about FICON and CCWs?

- **Traditional CCWs still used**
  - I/O requests with CCWs uses Command Mode
  - Continues to use FICON
- **FICON and z/HPF coexist**
  - Mix of FICON and zHPF I/O can be used at same time
  - Only most frequently used commands supported in Transport Mode

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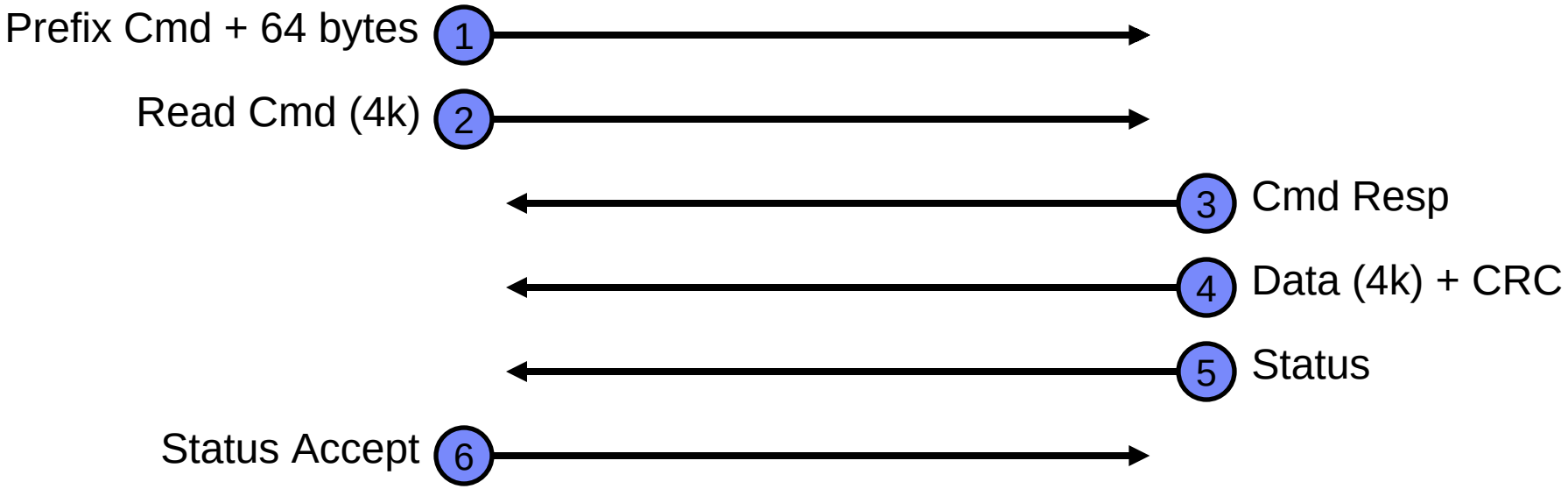
How Chatty is it?
One 4K Read in Command Mode



Read Result: 6 sequences for a single read

Write: A single 4K write requires 5 sequences

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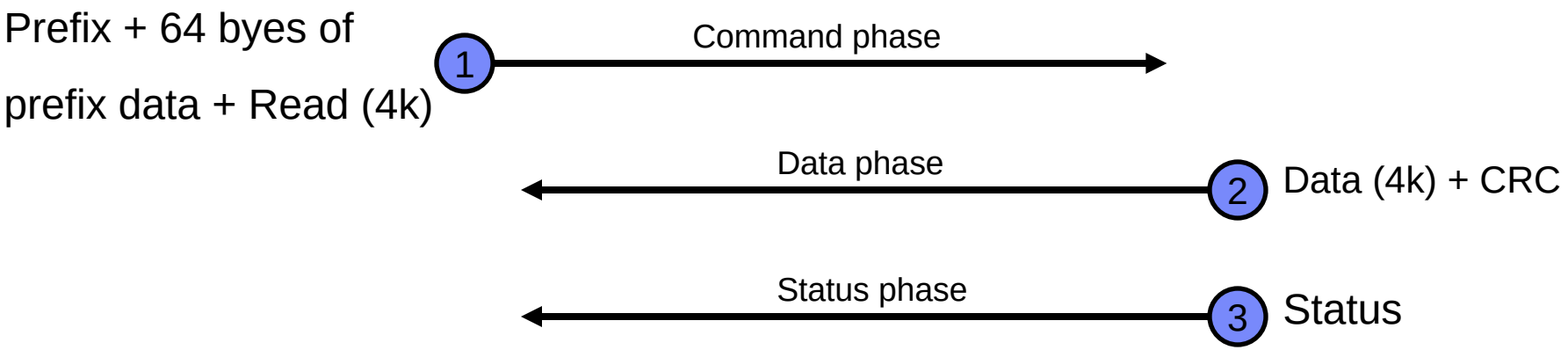
How Chatty is it?
One 4K Read in Transport Mode (zHPF)



Read Result: 3 sequences for a single read – cuts the chit-chat in half!

Write: A single 4K also requires 3 sequences

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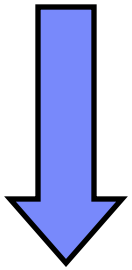
Using zHPF on z/TPF

- **z/TPF automatically detects and uses zHPF**



```
ZDMFS O
DMFS0011I MOD  TYPE     SDA  USE DUP STAT  VSN    LOCK COR   UNC   MODE
          0047 3390RCS 0EE5 RLT N/A   ON TI0001 MPLF 00000 00000 HPF
          0049 3390RCS 0DE3 RLT N/A   ON TI0003 MPLF 00000 00000 HPF
```

- **z/TPF automatically converts eligible I/Os to HPF**
  - Read and write of single records without chained MPLF commands
  - No application changes required

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What Do I Need to Use zHPF?

- **Processor**
  - z10 at Driver 76 or higher
  - z196, z114, zEC12
- **FICON Express-2 or above**
- **DASD control unit that supports zHPF**
  - Check with your vendor for appropriate code and/or hardware levels
  - Enable the LIC feature
- **z/TPF APAR PJ38360 (PUT 8)**

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