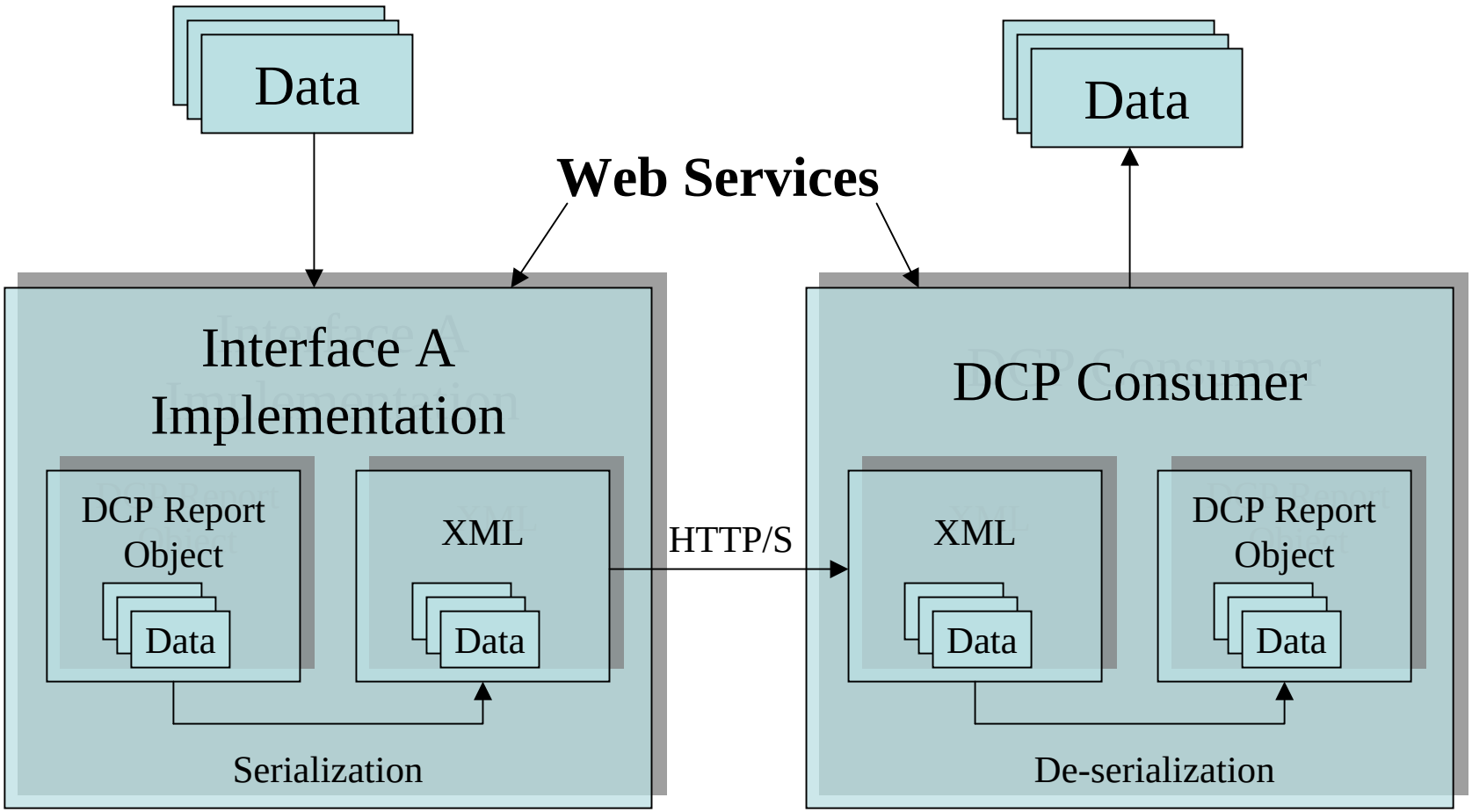
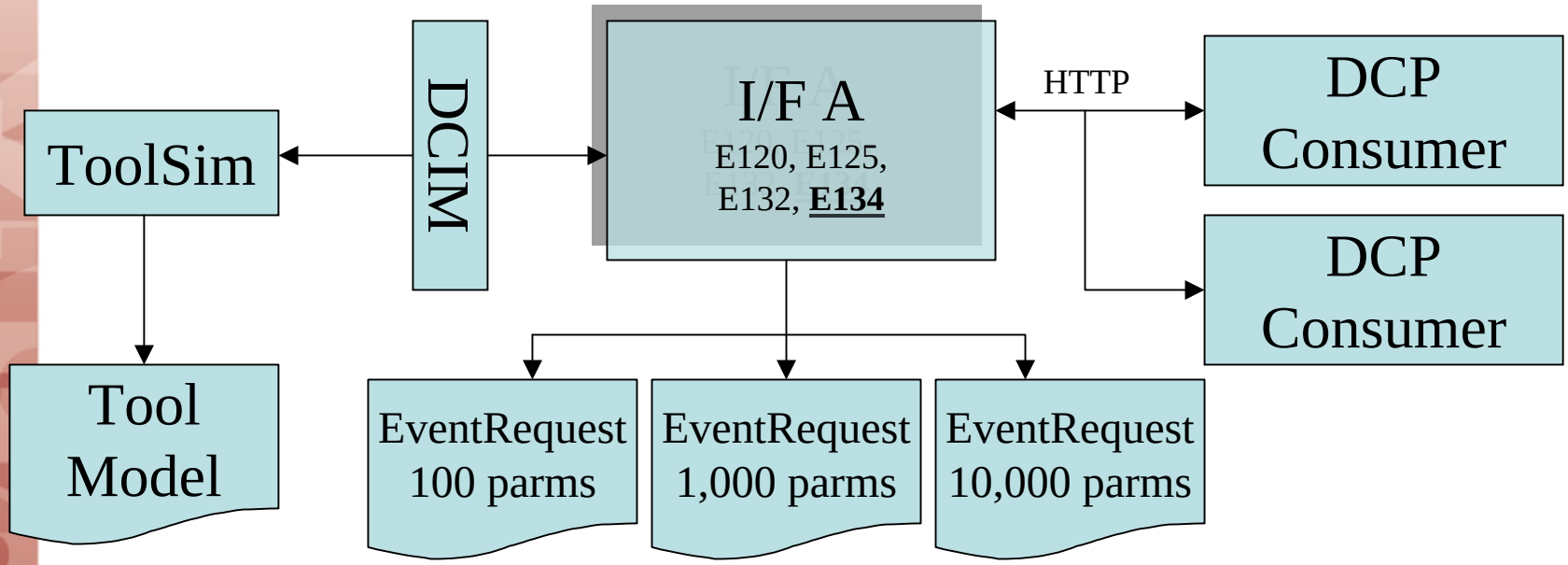
Interface A Performance

Michael Feaster

XML Serialization and De-serialization



Interface A Performance Test Configuration



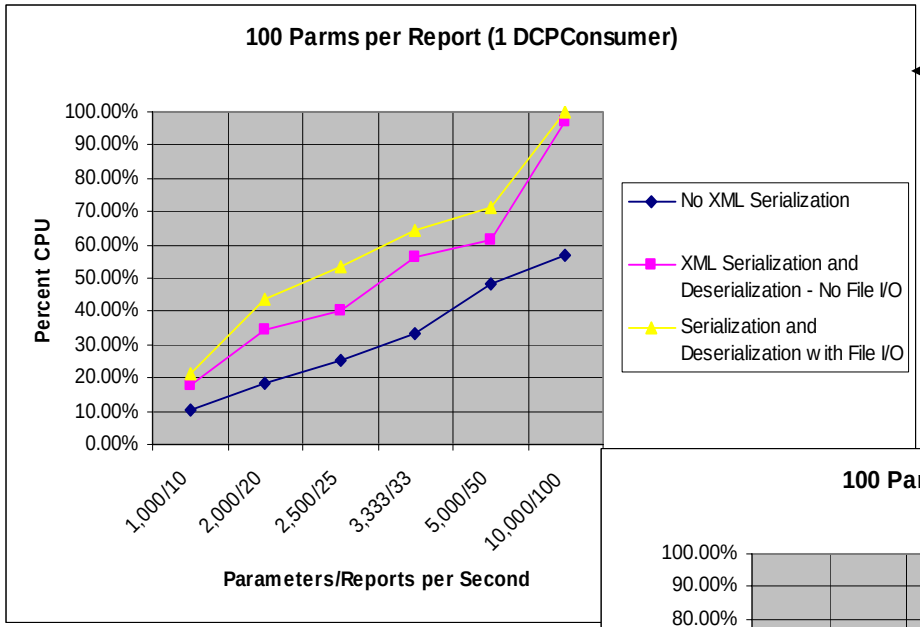
- 3 EventRequests: 100, 1,000, and 10,000 Parameters
- 1 and 2 DCPConsumers
- Measured various frequencies
  - Minimum 10 ms
  - Maximum 5000 ms
- Measured:
  - No Serialization
  - Full Serialization – No File I/O
  - Full Serialization – With File I/O

- Pentium M 1.4Ghz with 1 GB RAM
- Windows XP Pro
  - Service Pack 2
  - IIS 5.1
- Running Processes (all .NET):
  - Interface A Web Service
  - DCPConsumer Web Service (2)
  - DCPManager Web Application
  - ToolSIM Simulator

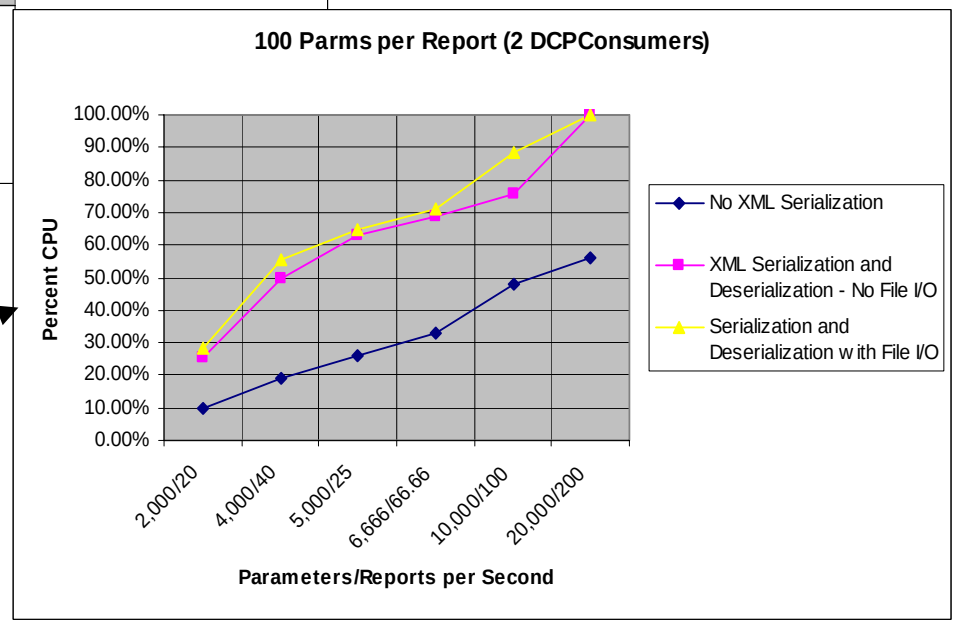
Interface A Tests

- 3 Test Scenarios:
  - Interface A only: Create Data Collection Report, but no XML Serialization/Deserialization
  - Full XML Serialization/Deserialization – sending to 1 or 2 DCPConsumers
    - DCPConsumers do nothing with the data
  - Full XML Serialization/Deserialization – sending to 1 or more DCPConsumers
    - DCPConsumers write data to a text file
- Data Types:
  - String (25%), U/I1-8 (50%), F4/F8 (25%)
- No optimization techniques were used in these tests

EventRequest with 100 Parameters

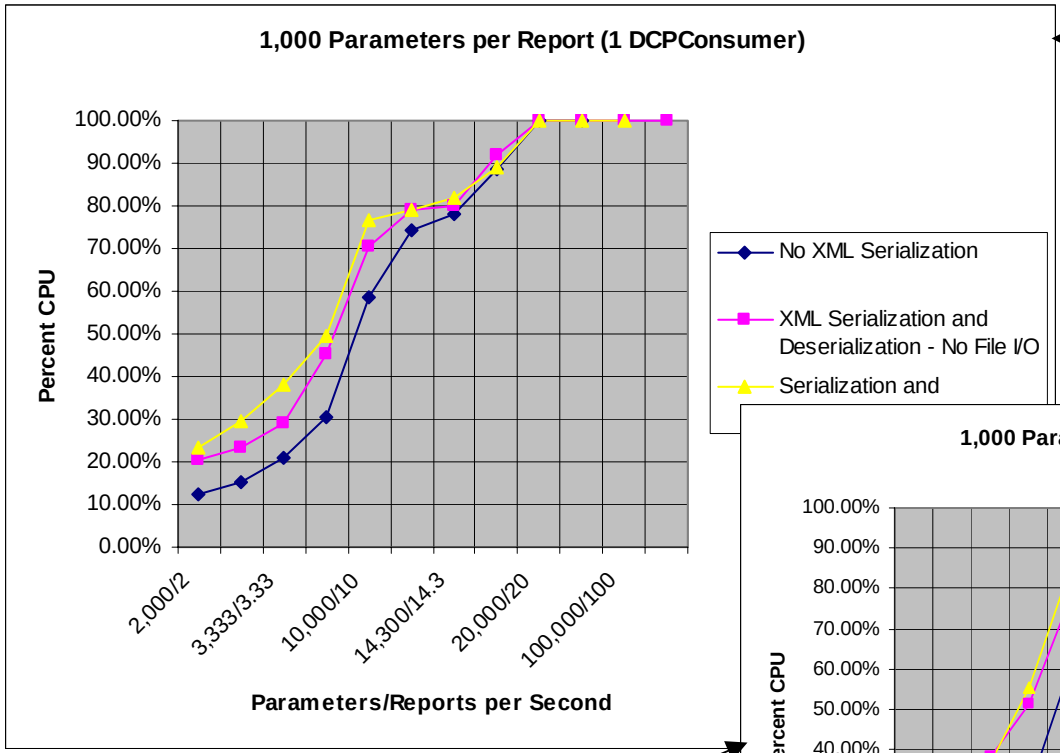


Max: 11,000 parameters/sec

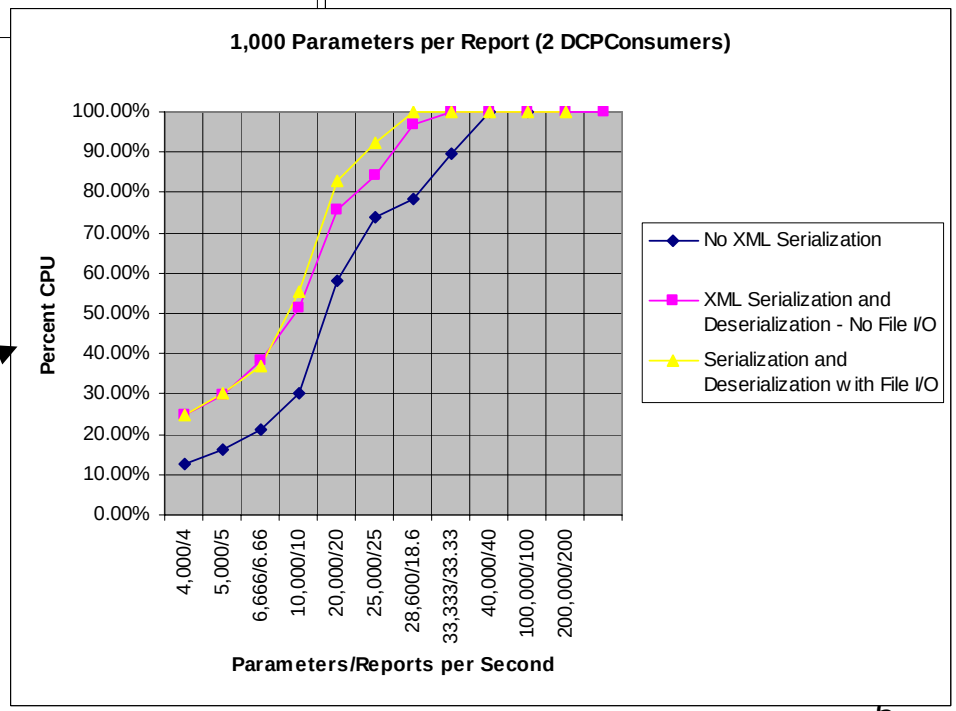


Max: 22,000 parameters/sec

EventRequest with 1,000 Parameters

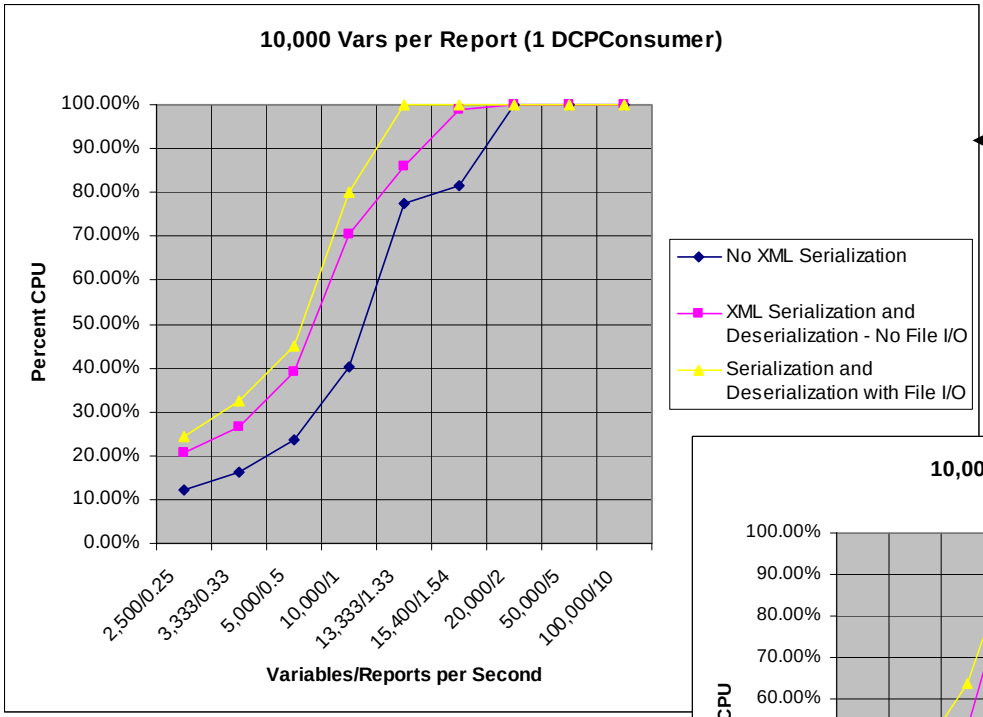


Max: 23,000 parameters/sec

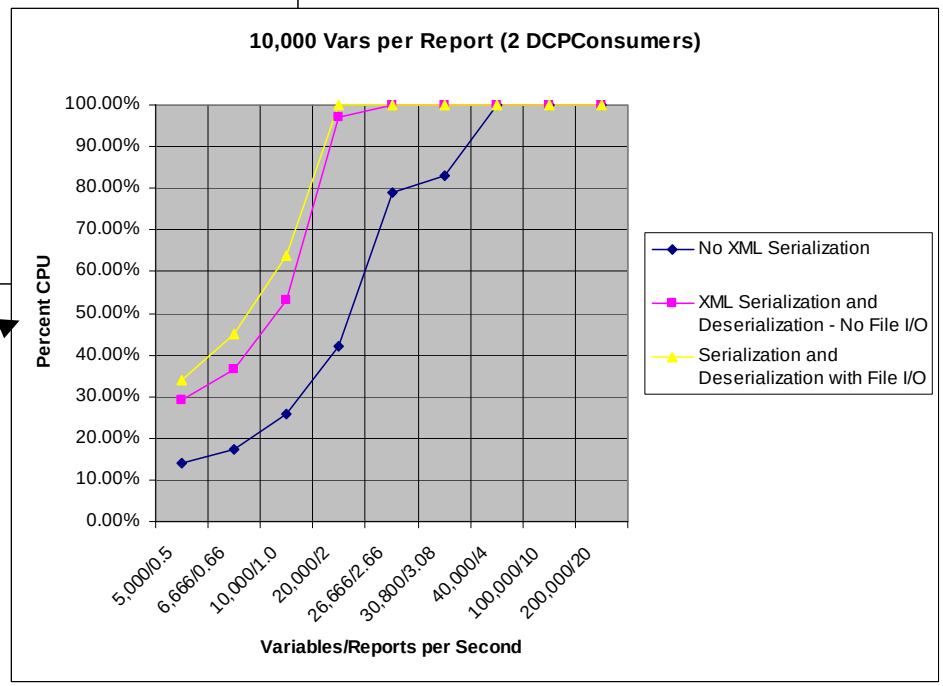


Max: 30,000 parameters/sec

Event Request with 10,000 Parameters

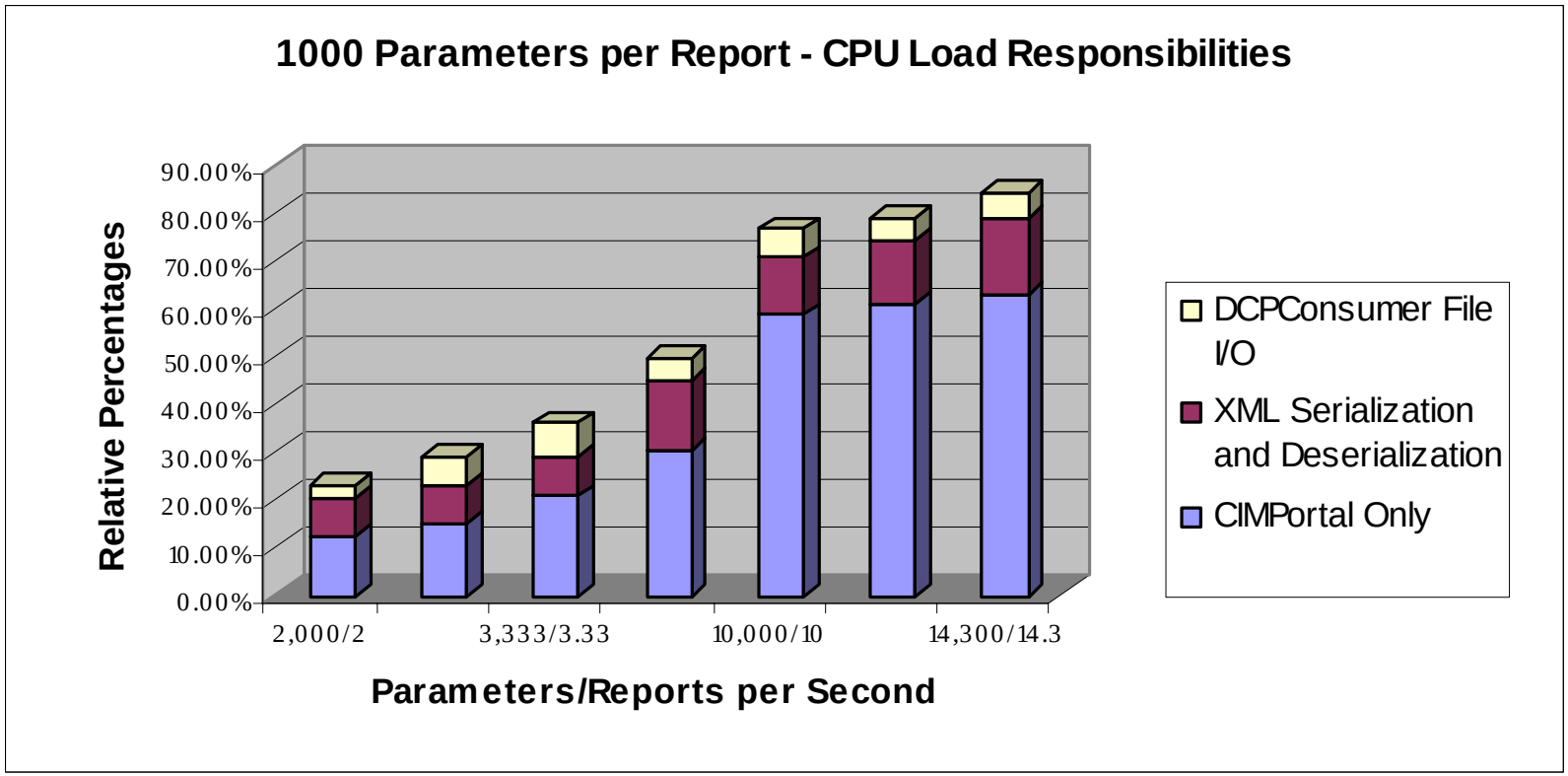


Max: 18,000 parameters/sec



Max: 23,000 parameters/sec

Processing Cost



Recommendations

- Maximize Interface A hardware
  - CPU
  - RAM
  - Bus speed
  - CPU Cache
- Performance improvements are highest in your data gathering implementation
  - Analyze performance trade-offs for consolidated versus distributed systems
  - Data collection and synchronization is critical
- In-house Interface A development
  - If using .NET, learn C# or VB
  - Learn Web Service Development