TPF Update
TPF Users Group, Nashville
October 2003

Stuart Waldron
Transaction Processing Facility (TPF) is the market-segment dominant transaction processor and operating system implement for specialized high-bandwidth computing.

Transaction Processing Facility (TPF) is optimized for:

- Maximum transaction rates per second (currently in the 25,000 per second range)
- Maximum networked end-user communities (currently in excess of 500,000 active connections)
- Fastest access to date, maintained (for business reasons) in large, contiguous data bases
TPF Market Requirements

TPF is most appropriate for the enterprise whose business model justifies the investment in a processing complex optimized to operate at the lowest possible cost per transaction.
Strategic Fit and Positioning within WebSphere Portfolio

- WebSphere Commerce Suite
- Personalization
- Content Management
- WS Voice Server
- WS Translation Server
- WS Portal Offerings
- WS Everyplace Offerings

CORE AND ENTERPRISE SOLUTIONS

- Enterprise Network Solutions
- Icing

- Transaction Processing Facility (TPF)
- TXSeries/EFS

- MQSeries (distributed)
- MQSeries (S/390)
- MQ Workflow
- MQ Integrator
- MQ Adapters
- WS Business Integrator
- PAM

- WS App Server & App Server/390
- WS Studio Application Dev.
- WS Edge Server
- WS Data Interchange

- WS Studio Homepage Builder
- WS Dev. Studio for AS/400
- WS Site Analyzer
- WS Host Integration
How is TPF Doing?

- Performance
  - Billions of transactions per day is a fact, not a claim.
- Reliability
  - Delivering real world four and five nines.
- Ease of development
  - Much improved and more to come.
- Availability of skills
  - Affinity with Linux structures and toolchain.
- Focused on Customers
  - A community of cooperative development for over 20 years!
So, What's Next?

- Service Based Architectures
- On Demand
- GRID Systems
- Open Systems
- 64 bit
TPF Statement of Direction - April 2002

IBM plans to take the following actions in the future. You are encouraged to consider these plans when making your own plans for system upgrades.

IBM is developing a new release of Transaction Processing Facility (TPF) which is designed to help address the challenges of high-speed, high-volume, high-bandwidth computing.

- TPF would utilize a 64-bit architecture allowing use of large virtual address spaces and programming models common on other platforms. This would enable immediate exploitation of large memory by applications while protecting current investments.

- TPF would adopt a suite of open tooling for standard application development, focusing on C and C++.

- TPF would exploit larger memory spaces for optimized price performance of system services and middleware such as web servers, mail servers and MQSeries.

These statements represent current intentions of IBM. IBM development plans are subject to change or withdrawal without further notice. Any reliance on this Statement of Direction is at the relying party's sole risk and will not create any liability or obligation for IBM.
Transaction Processing Facility - Today and Tomorrow

Http MQ
SMTP POP

Network Access Layer
TCP/IP, SSL - High volume access

Application / Services Layer
BAL, C/C++, PERL
MQ Queue Manager
APACHE CGI
TPF, POSIX API's
Commit/Rollback
Mail
SMP LW Processes
Administration and Security

Persistence Layer
High bandwidth access to structured and unstructured data

Enterprise Access

HTTP MQ
SMTP POP

TPF Efficiency
- Short pathlengths
- Concise services
- Low Latency

TPF Scaleability
- 32 way horizontal
- 16 way vertical
- $7.2 \times 10^{16}$ files addresses
- >25K messages a second

TPF Compatibility
- ISP C/C++
- POSIX functions
- Open connectivity
- Bridges to existing applications

TPF Future
- SOAP/LDAP
- 64 bit architecture
- GNU tool base
- GNU libraries
- Customization features of Linux; scale and reliability of TPF

TPF Users Group Nashville Oct. 2003
Do you have the right view of TPF?

Naming
Directory Routing
Logging
Security
Global customer view
Custom solutions for a competitive edge

...
Imagine a System that .......

- C/C++ supported, backed by POSIX implementations that keep code and skills portable.
- Allows for development and prototyping on ubiquitous Linux systems.
- Shares middleware and drivers with Linux.
- Provides source code, as Linux does, for customizations and competitive advantage.
- Sounds like Linux ,,,,,,,,,,, BUT:
- Has proven technology that provides for real 24x7 processing
  - duplicated critical resources, online capture, program loads, etc..
- Many times the I/O capacity of any mainstream server
  - Pointer driven DB structures for speed, reliability and availability.
- Can provide a logical migration path for open source based code that has reach horizontal growth limits.
- Supported by IBM.
Strategy

- Find a means to exploit the power of TPF without the requirement for such a highly specialized skill set
- Find a means to integrate TPF via service based architecture to the many distributed technologies that will be necessary
- Find a means to secure and manage the whole in a way that comes as close as possible to the advantages of a monolithic system
Infrastructure Simplification

Current Infrastructure

- Database Servers
- Web Servers
- Application Servers
- Security & Directory Servers
- File/Print Servers
- LAN Servers
- DNS Servers
- UI Data

Scale Out
- BladeCenter

Scale Up
- Mainframe
- zOS
- Linux

Heavy Lifting
- TPF Logging, Directory, Security, Mail
- Consolidated Customer record

TPF
Web Services Review

- An interface that describes a collection of operations that are network accessible through standardized XML messaging

- Web Services are principally implemented via three core technologies: SOAP, UDDI, and WSDL
  - Description Language, WSDL is the “publish” part of the triangle, and it is an XML vocabulary Simple Object Access Protocol (SOAP); the “bind-to and use” part of the triangle
  - Universal Description, Discovery and Integration (UDDI) is the “find” part of the triangle
  - Web Services describe service interfaces
TPF Relationship with Linux

- C/C++ Applications
- Open Source Middleware
  - SOAP, XML, LDAP, MYSQL, Etc.
- Open Source TPF I/O Model
- Open Source Linux I/O Model
- TPF Base
  - Full Source
- Fast Connect on zSeries
- Linux Base
  - Open Source
- Open Source Tooling - GNU Tool Chain
TPF Relationship with Linux (continued)

- Application runtime environment
  - Compatible with Linux
- Development environment
  - Same as Linux
- Distributed processing efficiency
  - Via gigabit ethernet or LPAR to LPAR (under z)
- TPF positioned to provide heavy lift capability
  - Still unbeatable in I/O capacity, speed and availability

TPF Runtime

<table>
<thead>
<tr>
<th>zSeries</th>
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<tbody>
<tr>
<td>TPF Runtime</td>
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<tr>
<td>Ancillary applications (pizza boxes), UDB, WAS, Tivoli, etc.</td>
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<tr>
<td>OSA</td>
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<tr>
<td>Shared Objects</td>
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<tr>
<td>C = C++ = BAL POSIX</td>
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<tr>
<td>GNU Libraries</td>
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<tr>
<td>glibc, stdlibc++, STL, …</td>
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<tr>
<td>Prototype applications</td>
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<tr>
<td>SCM (source code) collaborative development tools</td>
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<tr>
<td>TPF build environment</td>
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<td>GNU toolchain (GCC)</td>
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Reliability Price Performance
IBM Hospitality Night

- Apache and XML processing
- Mail Server
- Open Source Development
- TPF Information Center
- TPF Web
- Finding data on the Web (APARs)
- TPF Operations Server
- TPF MQSeries
- TCP/IP (aka try and stump Mark)
- VATPF / WebSphere Studio/TPF Debugger
- IBM services and education
- TPFDF
- TPF makefiles
- .... and more!
Wednesday Morning Education

- TPF MQSeries
  - Advice on using TPF's MQSeries support from our team of experts
- makefile for TPF
  - Migrating from a PDS / JCL based build infrastructure to makefile based
IBM Presentations

- TPFDF Update
- Pools requirements discussion
- SCP important APARs
- Shutdown levels by Dr. Bob
- Mail Server update
- TCP/IP roadmap and important APARs
- TPF Operations Server
- VATPF and TPF Debugger Updates
- TPF Information center update
zSeries Expo and Conference

- November 10th thru the 14th
- Las Vegas Hilton Resort

- YES ,, TPF will be there!!!
IBM Presentations ,,,, Up Next!!!!

- SOAP/XML
  - Colette Manoni
- TPFDF
  - Kevin Jones
- TPF MQSeries Updates
  - John Tarby
A word from our sponsor

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