z/TPF MQ Dynamic Routing

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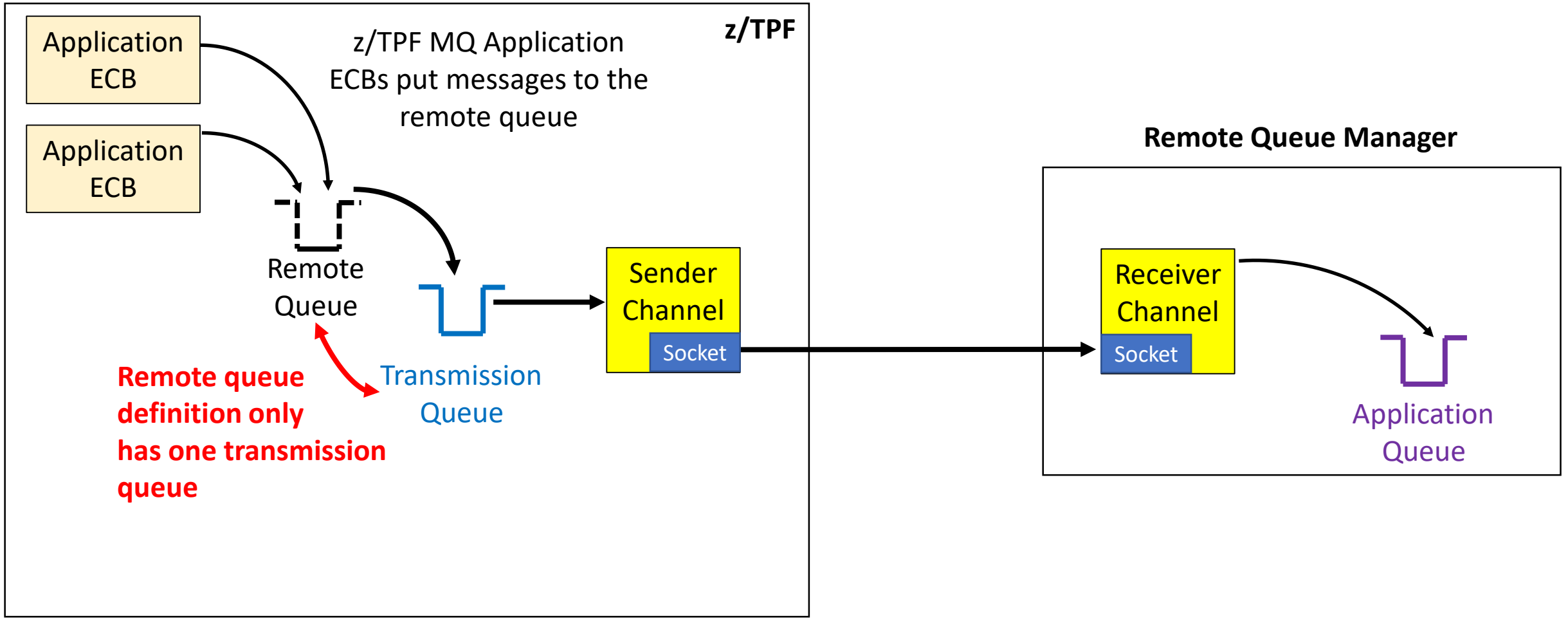
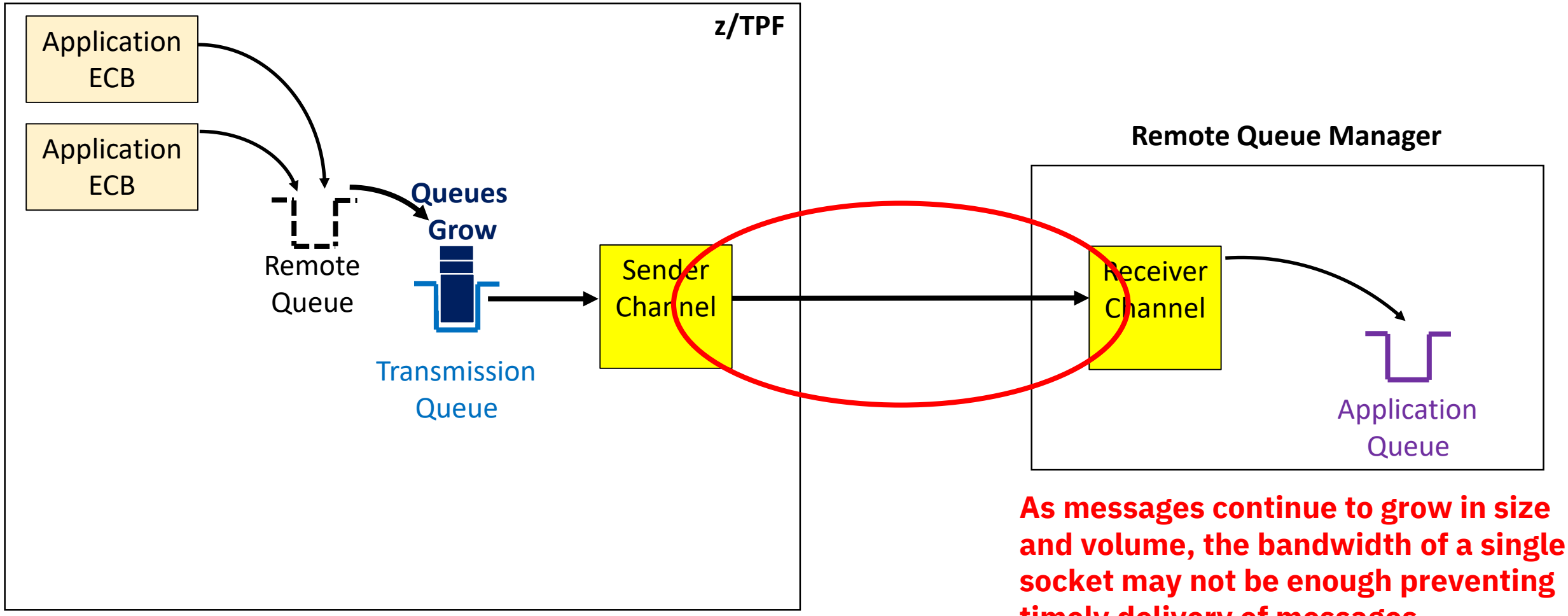
z/TPF Development

Background – z/TPF MQ Sender Channels

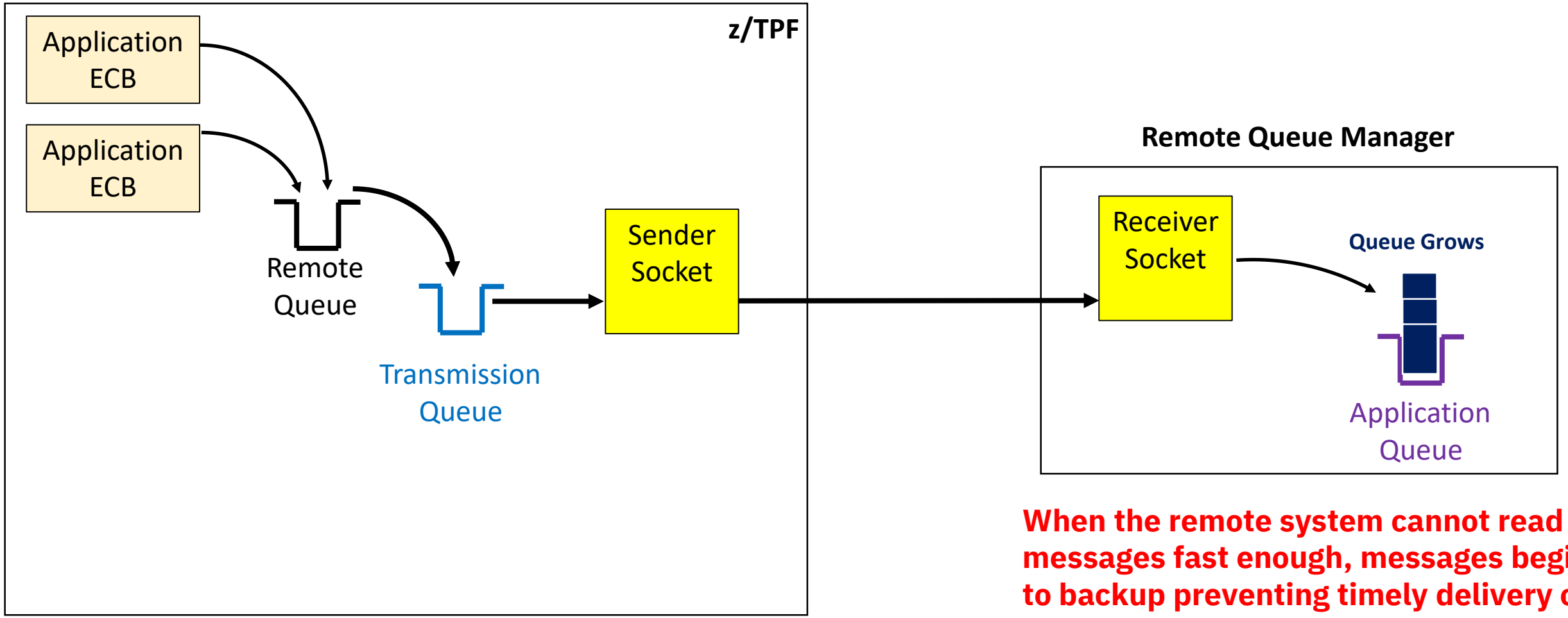


Problem 1: Single Channel = Finite Bandwidth



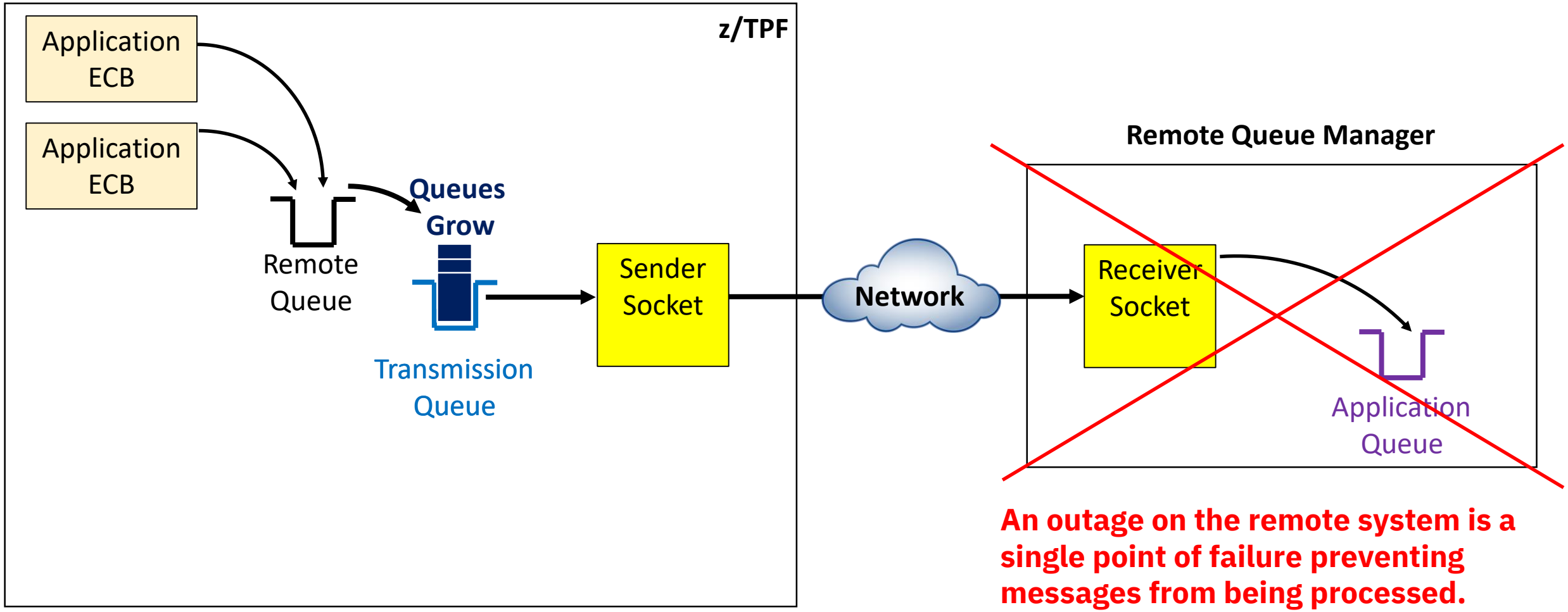
As messages continue to grow in size and volume, the bandwidth of a single socket may not be enough preventing timely delivery of messages.

Problem 2: Overloading the Remote System



When the remote system cannot read messages fast enough, messages begin to backup preventing timely delivery of messages.

Problem 3: Single Point of Failure



An outage on the remote system is a single point of failure preventing messages from being processed.

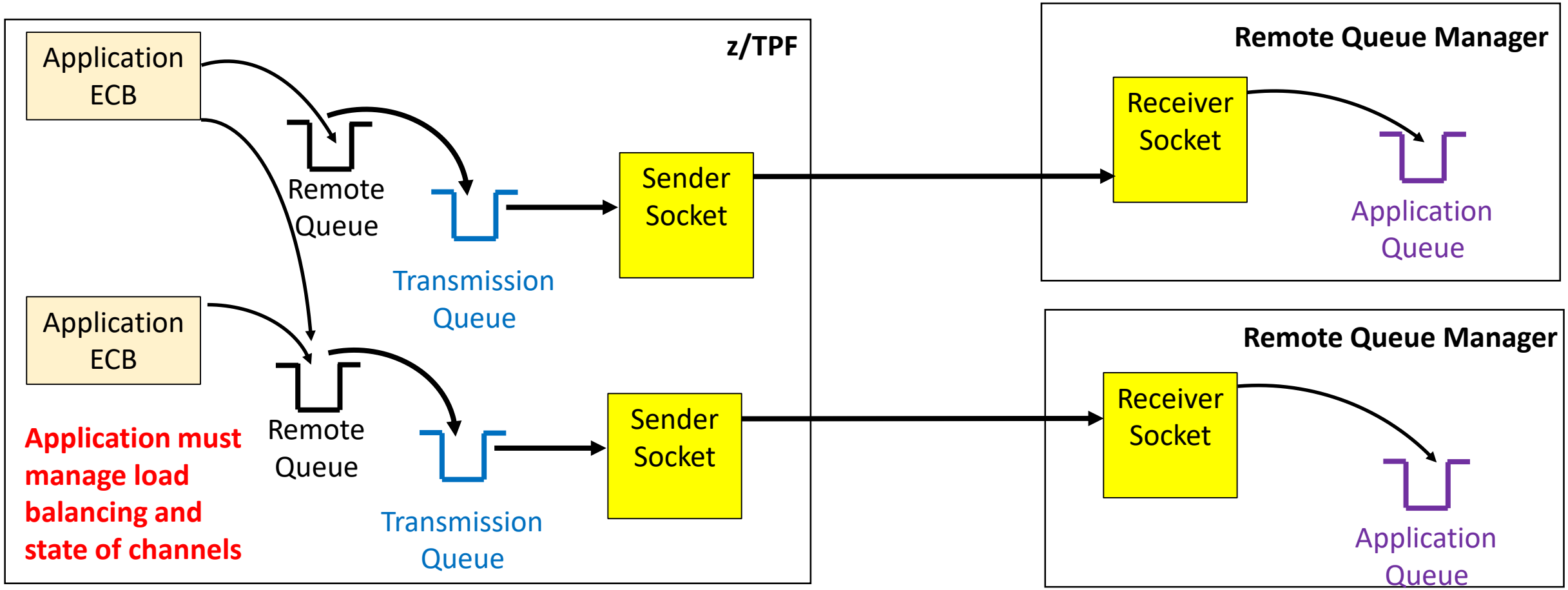
As-Is: Creating Additional Transmission Queues

- **To prevent single point of failure or bandwidth constraints**
  - Additional channels can be created to the same system or separate systems

- **Applications must create code to monitor the status of channels and handle load balancing across them**
  - Increased application complexity to monitor the status of channels and the size of transmission queues
  - Adding new transmission queues may require application changes

As-Is: Application Managed Multi-Channels

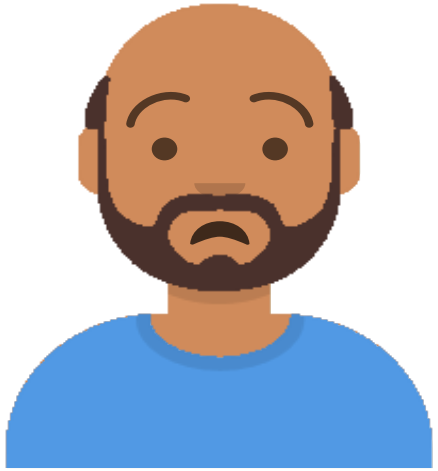
Can create additional transmission queues application logic must be added



Sender channel sockets could be connected to the same, or a separate, remote MQ system

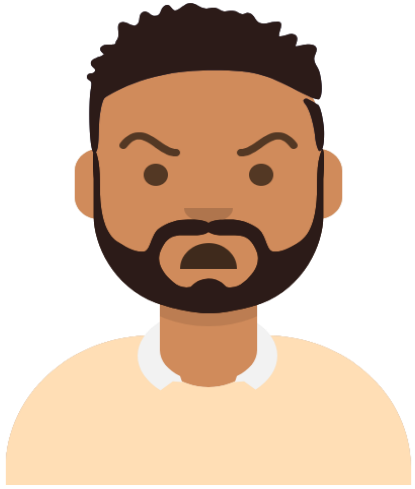
Users

Marvin is an
MQ admin



Messages continue to grow in size and volume. During peak times, Marvin sees messages sent by the z/TPF system not being processed fast enough.

Zach is an
application programmer



Zach would like for his application to spread messages across all available queue managers, and react to system state, however he does not want to introduce this complexity in the applications.

Derrick is an
operator

Intermittent Network issues force Derrick to manually monitor queues and re-route messages as needed.

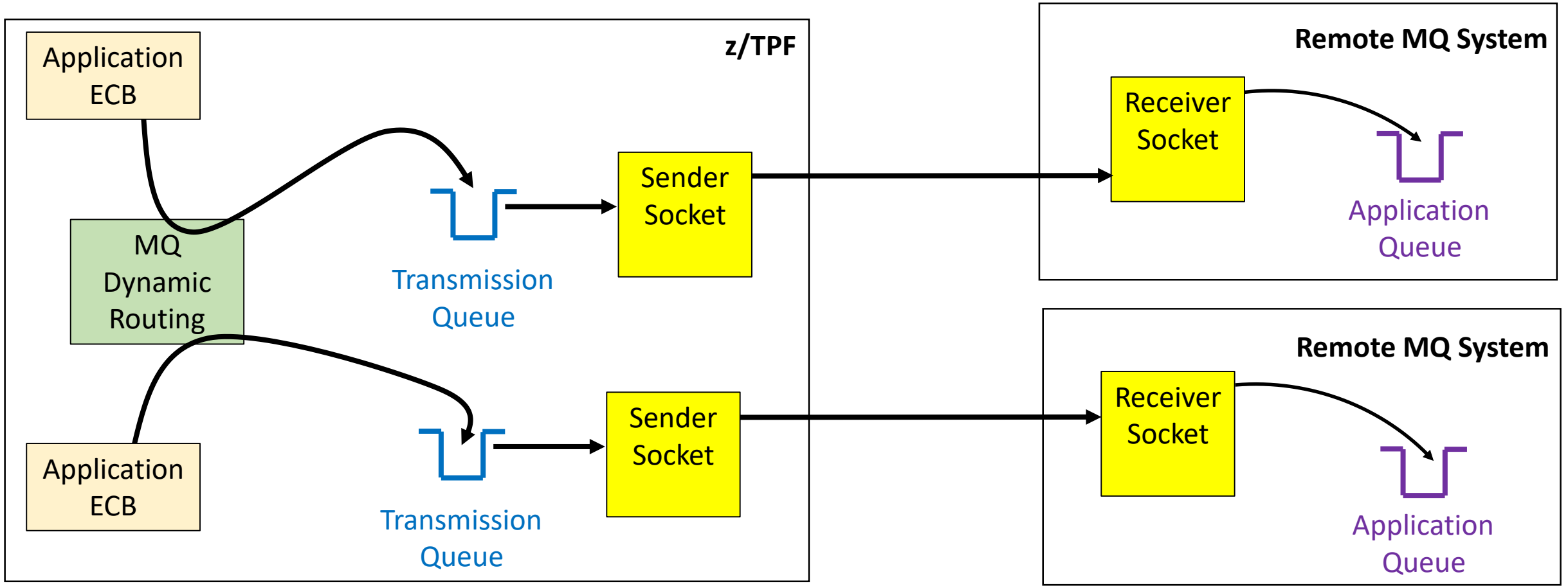
Our Vision - z/TPF MQ Dynamic Routing

- **Application still sends to a single remote queue name, but the remote queue name can be mapped to one or more channels.**
  - Mapping is done administratively without impacting existing applications
  - Monitoring and management of the channels is handled by the z/TPF system

- **Similar in concept to High Speed Connector where we administratively create groups of endpoints (remote systems) and their sockets.**

z/TPF Dynamic Routing Architecture

Application ECB sending messages to a single remote queue name to invoke MQ Dynamic Routing



MQ Dynamic Routing Configuration File

MQ Remote Queue definitions can be replaced with our new MQ Dynamic Routing configuration file.

Remote Queue Definition

```
          Queue Name:  RQ1
        Remote Queue:  Q1
Remote Queue Manager:  TPFQM1
  Transmission Queue:  XQ1
```

MQ Dynamic Routing Configuration File

```
#Name,  Remote Q,  Remote QMGR,  Transmission Q
RQ1,     Q1,        TPFQM1,        XQ1
RQ1,     Q1,        TPFQM1,        XQ2
RQ1,     Q1,        TPFQM2,        XQ3
RQ1,     Q1,        TPFQM2,        XQ4
```

- When the MQ Dynamic Routing Configuration File is loaded to the z/TPF file system
  - z/TPF automatically detects this and builds the in-core routing table

Value Statement – MQ Dynamic Routing

- **Multiple channels to remote systems that are managed and monitored by the z/TPF system**
  - Increased throughput of messages being processed
  - Higher availability in the event of failures

- Intelligent load balancing across all available channels
- z/TPF managed routing based on the state of the system and the channels
- Does not require application changes or outages to spread application messages across multiple channels.
- Can dynamically add channel definitions to increase capacity

Sponsor Users

- Get involved!
  - Development Underway
  - Technical Demos
  - Beta code

- Email jfmuller@us.ibm.com
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Content Survey

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Questions or Comments?

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