HSM Performance Reporting Discussion Document

Ross Systems International Limited

25 June, 2010

Introduction and Requirements

The Many Banks currently use ACI's Base 24 product running on an HP NonStop platform for their ATM based payments and/or POS systems.

These banks need to be able to manage this payments system so that the following criteria are satisfied:

1. Statutory and regulatory obligations are fulfilled.

2. Client satisfaction is maintained

3. Profitability is optimized

In order to fulfill these requirements reporting of the various components is crucial. ACI who have more than 30 years experience of electronic banking are well aware of these requirements and thus their Base24 product satisfies these banks' requirements with respect to reporting in most key areas.

Security, in the form of cryptography, within the BASE24 product is typically provided by Host Security Modules from a variety of manufacturers Thales/Atalla/Safenet and others, which are linked to the BASE24 kernel by ACI's RAM product or similar products from other vendors (HSM Driver).

These banks have become aware that these HSM Drivers do not provide them with any reporting of HSM activity or response time and therefore leaves them vulnerable in the following ways:

1. These banks may not have enough HSM capacity to meet peak loads.

2. These banks may have to buy too many HSMs to ensure they can meet peak loads based on guesstimates provided by suppliers.

3. Since transaction speeds vary these banks HSMs may be loaded with the wrong transaction mix with the result that transaction processing is impacted.

and also:

4. The cost of the existing HSM Driver is causing considerable concern.

In other words:

1. The banks Clients satisfaction may be impacted by slow system responses, and/or

2. The banks may be paying too much for HSMs with the corresponding impact on profitability.

This area of these banks' operations has been highlighted by developments:

1. Thales introduced a new series 9000 high performance HSMs with cost about £50,000 each, with proportional maintenance fees.

2. Thales will continue to support their current 8000 series of HSMs.

3. Thales are withdrawing their maintenances contracts for their older RG7000 HSMs

This scenario is also played out by other HSM manufacturers with the updating of their product lines, and also

The banks are therefore in a position where older HSMs will need to be replaced and thus the question of HSM performance has become crucial in the management of these banks' funds transfer and POS systems.

4. Some manufacturers are marking their HSM Driver for the Tandem platform as mature since they want to develop cross platform solutions.

This together with the cost of the existing HSM Drivers has led to a reappraisal of the existing solution and recognition of its several faults.

Many operations managers of these banks have became aware of alternative solutions to the existing HSM Drivers during a presentation given by RSI to the HP NonStop user group (BITUG) at HP's Wood Street Offices on 18th May 2010, and the ensuing publication of the presentation notes.

As a result of this document has been written to give an outline, non-binding indication of the functionality available from Ross Systems International and to act as a discussion document for resolving the problem detailed above.

The requirement is for an economic replacement to the current HSM Drivers which will give these banks the HSM performance information they require for the strategic and tactical management of the HSM component of their HP NonStop based payment system as well as strategic savings in comparison with the existing system.

Ross Systems International (RSI) have 30 years experience of HP NonStop based payments systems and 13 years experience of HSM communications and performance systems as a result of which they have developed a number of products to address the manageability and productivity of HSMs on HP NonStop systems, with special emphasis on communications, reliability and performance.

Thus these banks' requirements and RSI products and experience are a good match and RSI would like to like to be able to tender these banks two possible solutions to these banks based on either:
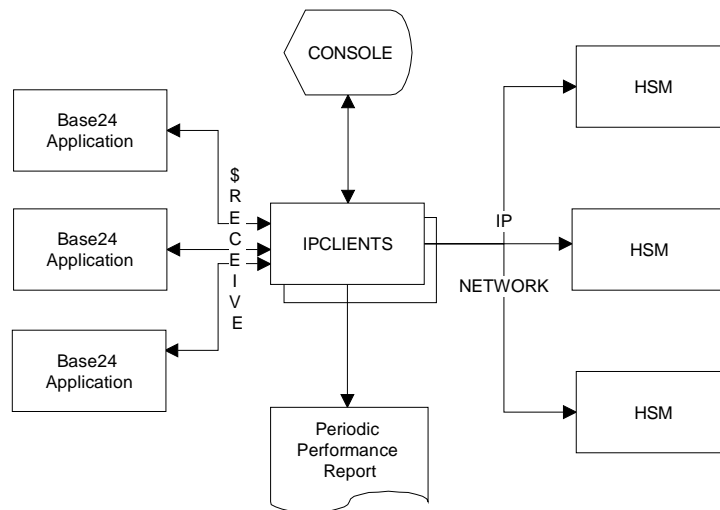
IP Client Stub.
This is a product which provides an $RECEIVE to TCP/IP connectivity, by means of which communication and on the fly reporting, configuration and control of the links between multiple processes and HSMs can be performed to provide both load balancing and resilience.

HSM Farm.
This is a product which provides the above plus much finer tuning of the load balancing, more detailed reporting and better persistence.

A brief summary of these solutions follows, giving both technical and financial details, as a basis for further discussions.

IP Client Stub Solution

Notes.

1. HSMs treated as a SOA service to be used by Base24 Applications.

2. IP Clients logically addressed by Base24 application processes $process.#ext

3. #ext provides mapping onto a number of HSM processes of the same type. I.e. assigned to a given range of functions

4. Base24 Client Transactions balanced over the range of allocated HSMs.

5. Messages delivered to HSMs and responses returned.

6. IP Client gathers statistics for each transaction type, Transaction time (minimum, maximum, average), count and possibly trend information.

7. Periodic update of Statistics to statistics reporting device, can be EMS messages to $0.

General

The product will be delivered as a result of a 3 phase project (Consultancy, RQP development, Implementation and Maintenance) as described in the Project, Deliverables and Project Phases sections below and subject to the conditions set our tin the Ownership and Privacy sections.

Cost Estimates.

The costs of this project will typically consist of those incurred by:

1. About two weeks consultancy, to determine the bank's requirement

2. A variable amount of time required for RPQ product enhancement, depending on the enhancements required.

3. An ongoing annual license fee, which depends on the number and type of systems supported

HSM Farm Solution
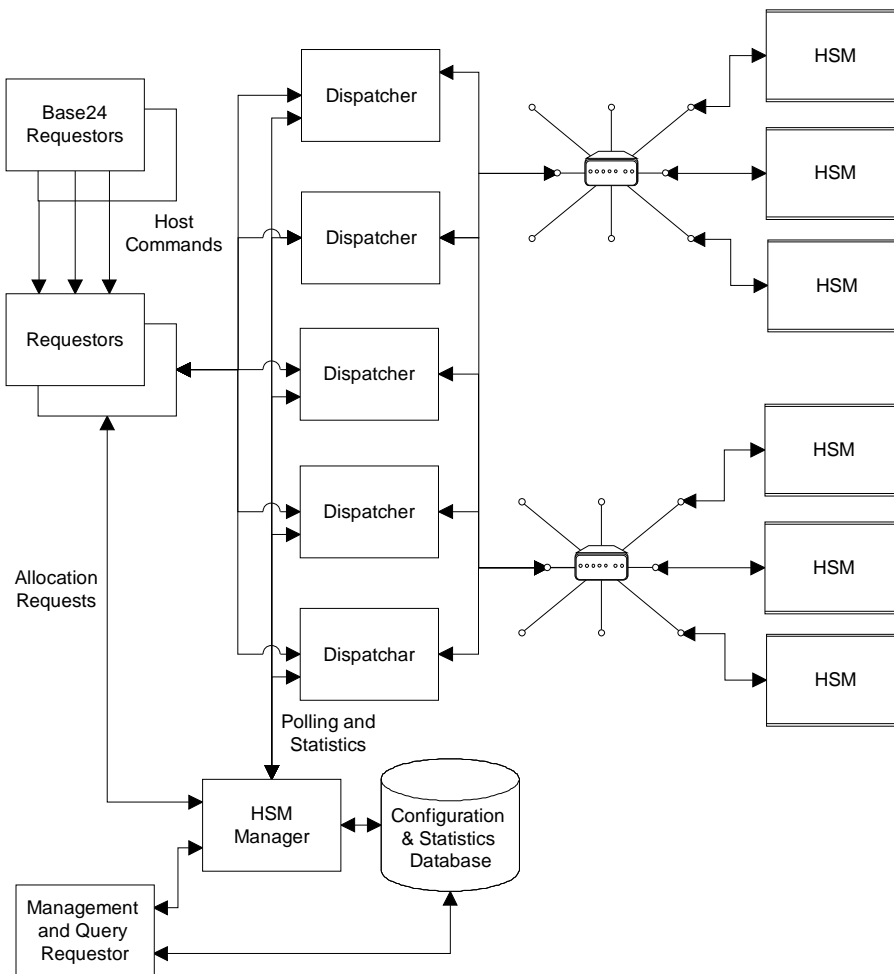
Notes.

1. HSM Farm treated as a SOA service to be used by Base24 Applications.

2. Requesters addressed by Base24 application processes provide static load balancing over requesters

3. Dispatchers provides dynamic per transaction mapping onto a number of HSM processes of the same type.

4. HSM Manager provides fault tolerance, dynamic control and reporting.

5. Configuration and Statistics database provides persistence and historic performance figures for analysis

6. Management and Query requester provides operator control and query functionality.

7. Systems is both Fault tolerant and persistent

8. Messages delivered to HSMs and responses returned.

9. IP Client gathers statistics for each transaction type, Transaction time (minimum, maximum, average), count and possibly trend information.

10. Periodic update of Statistics to statistics reporting device, can be EMS messages to $0.

11. System is explained in detail in the [high performance white paper](#).

General

The product will be delivered as a result of a 3 phase project (Consultancy, RQP development, Implementation and Maintenance) as described in the Project, Deliverables and Project Phases sections below and subject to the conditions set our tin the Ownership and Privacy sections.

Cost Estimates.

The costs of this project will typically consist of those incurred by:

1. About three weeks consultancy, to determine the bank's requirement

2. A variable amount of time required for RPQ product enhancement, depending on the enhancements required.

3. An ongoing annual license fee, which depends on the number and type of systems supported

Costs will be typically 50 – 70% higher for this solution than the IP Client Stub solution, reflecting the more advanced functionality and flexibility of this product.

Project.

Three phases:

1. Consultancy, to check requirements and proposed solutions
2. RPQ development of bespoke components
3. Implementation and maintenance

Deliverables

1. Quality Plan
2. Project Plan
3. System Specification
4. Test and Acceptance Documentation
5. Product/Operations Documentation
6. Product Code
7. One year's license

Project Phases

1. Consultancy

   Time and materials. This phase is expected to last about one fifth of the duration of the project during which the exact requirements are to be refined and solution proposed.

   This phase will be complete when the quality plan, system specification, project plan and acceptance plan will have been produced.

2. RPQ Development

   Fixed price. This phase is expected to last about four fifths of the duration of the project during which the program specifications, test specifications, bespoke working program code and product documentation will be produced.

   This phase will be complete when all the corresponding documentation is complete and the product unit tests and system tests have been successfully completed.

3. Implementation

   Fixed price + materials. This phase consists of two steps:

   1. Step 1. Handover.
      Lasts about 2 days, during which the acceptance tests are carried out and the remainder of the deliverables are handed over.
      It terminates when the acceptance tests have passed and all the deliverables have been handed over

   2. Step 2. Licensed operation.
      Lasts 1 year, maintained operation, during which RSI will provide maintenance for the product, which will be telephone or on-site. On site support will attract travel and living cost expenses as appropriate. This phase will be complete at the end of the year additional years licenses will be offered.

<u>Intellectual Property Rights</u>

Ross Systems International Limited shall retain all intellectual property rights and rights of invention to all products, deliverables and concepts provided during and as a result of any activity with these banks and these banks undertakes not to copyright, patent or claim ownership in any way or at any time to any idea, invention or product provided by RSI.

<u>Confidentiality</u>

Neither party nor its employees nor representatives shall disclose information about the other, this shall exclude information that may properly be disclosed by either party as agreed in writing, information which is in the public domain, information about either party's products to which it has ownership and other suppliers information obtained independently.

<u>Summary</u>

This document is to be considered as a NON binding proposal to satisfy banks' requirement for a communications and performance reporting system for the HSM component of their ATM Base24 System to replace their current HSM Driver component.

The two solutions proposed by RSI are:

IP Client Stub
A simple load balanced communications system with operator controlled dynamic re-configuration and reporting, on demand and periodic.

The product is to be delivered as a result of a three phase project typically taking a total of 10 weeks followed by a year's license which includes maintenance.

IP Client Stub
A sophisticated communications system which provides both dynamically load balanced and a high level of fault tolerance and persistence, including operator controlled dynamic re-configuration. Performance reporting can be configured to be periodic and/or on demand.

The product is to be delivered as a result of a three phase project typically taking a total of 18 weeks followed by a year's license which includes maintenance.

All yearly licenses fees are subject to an increase to account for inflation.

For further information please contact:

Rupert Stanley
Ross Systems International Limited.
The Hollies
18 New Road
Mistley
Manningtree
Essex
U.K. CO11 2AG

Tel: +44-1206-392923

eMail: rupert@rsi-ns.com

Web: www.rsi-ns.com