

**AI 298 - System stability****1. Dispute****Severity Assessment: Pathway: MEDIUM POCL: HIGH**

- Pathway have been extremely reluctant to acknowledge that they have a system stability problem and to take appropriate action
- Pathway's ability to identify outlet-affecting faults reported to the Helpdesk as problems has been brought into doubt; the HSH have become over reliant on the use of reboots as a universal panacea, without addressing the underlying problem.
- unless the system stability problem is handled effectively, the current level of incidents is likely to increase
- a large number of different causes of instability have been identified, requiring fixes in a number of areas - suggesting a widespread systemic problem in Pathway's approach to development and in the effectiveness of their testing of the service prior to release. *[Min - this is damning, but I think it's probably the biggest point - even if Pathway address each of the visible causes of instability, we have little confidence that more are not lurking - either as instability or integrity problems - as a result of their approach].*
- most incidents are visible to the customer and directly impact the service they get
- the public's perception of the Post Office service and brand will be adversely affected

**Rectification Plan: Not agreed**

- Pathway's current approach is to fix individual symptoms rather than to address root causes
- to enable roll-out to start Pathway must evidence a professional approach to rectification and demonstrate a consistent reduction in incident rates

**2. Description of Deficiency**

Evidence from the live trial shows that the counter system is unstable and lacking the 'industrial strength' necessary for a production environment. This is evidenced by:

- system-level error messages such as Out of Virtual Memory being displayed to end-users
- back and front office printing problems such as printer hanging
- general system faults such as frozen screens and menu icons rendered unusable (in circumstances when this should not be the case) by having barred symbols.

All of these incidents result in disruption to the service in the outlet, and the more severe of them result in loss of service for significant periods, requiring users to call the helpdesk and then to reboot the system:

This Acceptance Incident was originally raised on 1/7/99 as a result of mis-directed calls to POCL's Live Trail Support Centre. As these calls should have been made to the Horizon System Helpdesk (HSH), POCL was concerned that Pathway's Problem Management function was not identifying/reporting this as a problem. Examination of the Pathway Problem Management Database (once this was made available to POCL) confirmed that a number of the problems evident in the live environment were not being treated as "problems". POCL therefore asked to see the HSH log to determine the position. Access was refused (see John Bennett letter of xxx attached (DN I hope someone's got a copy). It was not until Peter Copping, the Dispute Resolution Expert, directed Pathway that access to the HSH Log was given to POCL on the 15<sup>th</sup> July. (This is when Pathway announced to us that we could have access, we first looked at it on the 20<sup>th</sup> (DN - Jeremy, do you know the date).

Despite mounting evidence to the contrary, Pathway continued to report that the System Stability incidents were under control, and were in fact falling as a result of the LT2 release. As late as the MR session on 12/8/99, Pathway reported that there were 6 System Stability

incidents in the key Wednesday/Thursday period of week 18/19 (see attached). POCL's analysis indicated there were about 90.

To resolve such differences, and directed by Peter Copping, ICL Pathway and POCL Business Service Management carried out a joint analysis of calls made to the Horizon System Helpdesk of system stability incidents. This analysis covered week 19, the period from 29 July 1999 until 4 August 1999. Comparison with recent weeks indicates a similar rate of calls. The size of the network is 323 offices with 821 counter positions. The number of incidents per week in this population is shown below.

Incident	Reboot Required	Other Recovery	Total for Week
"Error Messages"	14	4	18
Back Office Printer	19	18	37
Counter Printer	13	25	38
General System Faults	34	46	80
Others Reboot Classifications	40	0	40
<b>Total</b>	<b>120</b>	<b>93</b>	<b>213</b>

Commented [POCL1]:  
Commented [POCL2]:

The detail of the analysis is attached. POCL believe Pathway agree these numbers except for the "other reboot classifications" which they wish to exclude. Pathway have not analysed these incidents and so cannot confirm the classification or give an explanation of their cause. POCL consider that these should be included as part of this Acceptance Incident.

These numbers of reported incidents are the lower limit to the true incidence, since users with recurring problems may learn the re-boot fix and apply it themselves rather than reporting the problem to the HSH, as evidenced from a POCL telephone survey of offices. Poor help desk performance against service levels (AI 408) may have increased this effect. POCL requested that Pathway undertake an analysis of the system event logs to assess the extent of under-reporting of events requiring a system re-boot, but Pathway have not done this.

Pathway say they have undertaken analysis of the causes of these incidents, but this analysis has not been shared with POCL. No explanation has been given on why these incidents are occurring. *[Min - is the factually correct? Agreed the landscape table of 8 "problem areas" which they have supplied under the AI doesn't give the analysis, but could they say that the Problem Management Database, available to Dave McL in BSM, gives this, for each of the PiuCLs? I don't know what analysis, if any, is happening with that, but we don't want to shoot ourself in the foot if they can say we do.]*

Although these problems with system instability have been repeatedly raised with Pathway, there does not seem to have been significant effort deployed to analyse, establish the root cause and fix them until after completion of the core observation period. It appears that this was partly because Pathway's help desk and service management MIS systems did not provide the diagnostic data that would have enabled an earlier understanding of the extent of the problem and prompted deployment of appropriate Pathway resources to rectify it. Instead, early efforts in this area seem to have been focused on a failed attempt to collect evidence that the problem was less prevalent than POCL users were perceiving.

The sheer number and type of instability problems causes concern about the underlying causes behind these faults and potential weaknesses in Pathway's development and test approach. In particular, there is little evidence to demonstrate that the underlying causes have been addressed and we are unaware of any analysis that is being performed to detect other similar system stability weaknesses prior to release to live operation.

### 3. Business Impact

The impact on POCL's business varies with the different circumstances of the failure. POCL has undertaken an analysis of the incidents to determine, for each incident type, the impact in terms of:

1. **Customer Service.** Many of these incidents occur whilst serving customers. This will impact the customers in a number of ways:
  - for the customer being served, there will be the inconvenience of having to go to another counter to be served. The impact of this will be worse on peak days. In single position (currently 42% of the network) there will be a delay conservatively estimated at 10 to 25 minutes before the customer can be served. (This is estimated as follows: 10 minutes, whilst the user realises he/she has a problem, contacts Pathway's Horizon System Helpdesk (see also AI 408 for Acceptance Incident on poor HSH response times), explain the problem, discuss the activity leading up to the freeze, consider the solution proposed by the HSH and then implement the solution. Where a re-boot of the system is required, as in 56% of occurrences, there will be an additional 15 minute delay while the system recovers. During this time the customer may be served in manual fall-back mode, if available, although this may be slower and less reliable than automated processing. *See AP fallback - takes longer to get through, more risk of error... and once we get to AP Smart, there is no fallback*
  - for other customers waiting to be served, there will be a knock-on effect resulting in delays to their being served. This will result in loss of business as some customers will vote with their feet. For those intending to pay bills this could result in non-payment and even disconnection
  - general public's perception of the service will be affected. A failure of service will be visible to anyone in the post office. Incidents at the frequency we are currently observing is likely to be a matter of discussion within the community, and the poor perception of the automated service could well be reported in local and national press. This will damage the Post Office brand.
2. **Users.** For the users, there will be considerable inconvenience resulting from each incident:
  - users will have to spend additional time: recovering the service (see above); recovering transactions undertaken in manual fall-back mode; on back office activity disrupted by the incidents
  - users will be unable to provide a good service to their customers. As has been evidenced in the Live Trial, the lack of system stability is considerably undermining their confidence in the automated service.
  - when combined with the poor response from the HSH (AI 408) there is a danger that sub-postmasters will refuse to use the system. POCL believe that at the current level of incidents there is a significant danger that resistance to accepting the new system will spread throughout the office network. Without sub-postmaster co-operation, the roll-out cannot take place.
  - delays in the production of the Cash Account

Other significant impacts are:

3. increase in Horizon System Helpdesk and Network Business Service Centre Helpdesk calls resulting in general degradation of support to other outlets and the consequential cost to help recover the service.
4. the risk of data corruption during a re-boot incident. Until a detailed analysis of a sample of representative incidents is undertaken (including the consequence on POCL's back-end processing) POCL cannot be sure that data is not being lost or corrupted.
5. the risk of errors generated in fall-back impacting POCL Transaction Processing (see AI 390 for an example of shortfall in service in fall-back mode)
6. the business will be exposed to fraudulent activities as losses can be attributed to the system

7. client SLA/confidence. POCL may not be meeting clients' service level requirements because we cannot serve the customers. The clients will also be affected through errors occurring as a result of a system failure.

7.8. the instability undermines the credibility of the system for management of our business in outlets, including the use of it for investigation and any subsequent prosecution of staff or subpostmasters or the recovery of funds. (Min. ie use of evidence from the service in court would be laughable if it comes out that it crashed regularly during the Cash Account, etc)

As these problems have yet to be resolved there is evidence that users are rebooting the system themselves without calling the Horizon System Helpdesk (as shown in the joint week 19 analysis attached (10), and from POCL's week 19 telephone survey (46)). This further increases the risk that transactions would be lost impacting customers and clients and that unknown problems would not be identified by ICL Pathway.

#### 4. Severity Rating

**Pathway's Severity Rating: MEDIUM**

**POCL's Severity Rating: HIGH**

The frequency of the instability problems and subsequent reboots is ~~and~~ unacceptable.

Each system stability incident has a significant impact on the POCL business. POCL estimate that over 80% (**DN Dave Mac's and Min B's back of envelope calculation - anyone got anything better?**) of these incidents will have a substantive impact on customer service, with the majority of other incidents having a significant impact on critical business activities such as balancing and Cash Account production.

There are many manifestations of the problem. We do not know if these represent separate root causes, or whether some are related to more fundamental problems. There is no agreed root cause analysis, nor has Pathway been in a position to participate in a joint Pathway/POCL analysis of the consequence of these incidents.

The POCL vision is to be "the UK's number one choice for the important business of everyday life". We act as an agent providing value chain between our customers and clients, with integrity and trust being key to the way we gain and retain business in a highly competitive marketplace which offers alternative channels.

POCL's strategy is predicated on growing extremely competitive and high quality service which builds on the major trust and integrity attributes of the brand. Aggressive plans to gain competitive advantage by emphasising the unique selling point of our extensive network of post offices depend on POCL and Pathway's ability to offer a credible service which is fit for purpose against an increasingly competitive environment. Persuading existing and potential clients to rely on using POCL as the sole 'outlet' provider of financial services on their behalf, is key to achieving this overall strategic aim.

Severe system instability problems which may occur if the current problems are not properly addressed will totally undermine this strategy.

POCL assess this Acceptance Incident as High because it clearly comes under the contractual definition of High as "Failure to meet an Acceptance Criterion which would have a substantive impact on the service received by the customer". This results from (a) the current level of occurrence, (b) the associated impact on business costs, income and service levels to customers; (c) the associated impact on customer, client and user perception, (d) the absence of any rigorous analysis of the cause and therefore the risk of increased future occurrence as the system loading increases (e) **(DN rumours that Keith Baines has an (e)?)**.

*[Min - we could also justify it on Security, from what I remember of the high level criteria, although this might be red rag to the bull. Keith may be able to advise on interpretation.]*

## 5. Rectification Plan

Rectification is required before the start of roll-out.

POCL's requirements for reducing the severity to Medium are:

- Pathway to produce a rectification plan for this Acceptance Incident
- Pathway to develop an open approach to managing the problem aimed at restoring POCL's confidence that it is being effectively addressed
- \* Pathway's approach to include:
  - \* analysis of the complete design and inspection of the code to look for similar faults (ie faults caused by similar design or coding errors); introduction of fixes and defensive measures where applicable
  - \* execution of further specific tests aimed at flushing out aspects of instability which may be hidden but may be exhibited when the system is perturbed in some way (eg with new reference data, or new software drop)
  - \* analysis of the design, development test and integration methods and controls to determine why faults of this nature were introduced and were not detected at the correct time, and to determine what corrective actions can be taken to avoid such faults slipping through the net on future releases
- ~~(DN whatever the right words are that Jeremy was using to describe the holistic review)~~ as well as root cause analysis of individual categories of incident
- POCL to agree Pathway's approach to monitoring and reporting incidents
- Pathway and POCL to agree objective criteria for measuring System Stability and the targets for key milestones in the rectification plan

Analysis of System Stability Issues

Version 4

	Weekly Total	Reboot Required	Other	Week 19 Total
<b>Error Messages</b>				
Out of Virtual Memory	4	4		4
Unable to Contact HQ				0
Critical Event	5			
Stock Declaration	9	10	4	14
Total Error Messages	18	14	4	18
<b>Back Office Printer</b>				
Spurious Printing	7			
Printer Hung	26	19	14	33
Out of Paper	2		2	2
Printing Paper Jam	2		2	2
Total Back Office Printer Probs	37	19	18	37
<b>Counter Printer</b>				
Printing NO receipts	38	13	25	38
<b>General System Faults</b>				
Lock Out	1	1		1
Frozen Screen	14	14		14
No Entry	51	5	46	51
No Icon	7	7		7
Blue Screen	4	4		4
Dr Watson Message	3	3		3
Sum of general system faults	80	34	46	80
<b>Other Reboot Classifications</b>				
User initiated reboot	10	10		10
Application problems	12	12		12
Incorrect reboot advice	8	8		8
Others(balancing figure)	10	10		10
Total Other reboots	40	40		40
Overall Total	213	120	93	213
<b>Re-classified - not reboot</b>				
Non-live outlets		7		
Hardware faults		6		
Power failures etc		8		
Wrongly classified codes		10		

POCL consider that these should be included as part of this Acceptance Incident and proper root cause analysis and rectification undertaken:

- **user initiated reboots (10)**: POCL's analysis of these calls, discussed with Pathway, indicated that this was probably the right course of action
- **application problems (12)**: these are clearly destabilising the system
- **incorrect re-boot advice (8)**: the wrong advice from Pathway is destabilising the system
- **others (10)**: Pathway authorised these reboots presumably because there was no other course of action. Until the incidents are analysed and an alternative cause given, these should be part of this AI.