

WDC and WCC CSC Co-location:

Summary of Telephony Options and Recommendations

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1 Document Information

1.1 Version History

Date	Version	Summary of Changes	Author
May 2008	V0.1	First issue	Helen Anderson
May 2008	V0.2	Comments from reviewers	Helen Anderson

1.2 Distribution

- **V0.1 Review 07/05/2008**
 - David Iles
 - Helen Anderson
 - Fiona Bevan
 - Mark Woodward
 - Richard Bates
- **V0.2 For Approval**
 - Project Board

1.3 Approvals

- Project Board

1.4 Glossary

Term	Definition
DDI	Direct Dial Inwards. Internal Numbers that do not link directly with one external line. It allows fewer lines than extensions but these extensions can be used by the outside world if the whole number is known
H323	Multimedia communication standard designed specifically for IP networks. Specifies the components, protocols and procedures that provide multimedia communication services—real-time audio, video, and data communications—over packet networks, including Internet protocol (IP)–based networks. Necessitates use of compressors on the VoIP systems.
DPNSS	Digital private networking signalling system (BT). Used for connecting different systems using certain network protocols. Links the WCC PBX to ACD and the WCC Telephone system to the current WDC ISDX Telephone System.

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3 Management Summary

3.1 Overview

The collocation of the WDC CSC within Shire Hall means that the WDC CSC and switchboard calls must be transferred from Riverside House to Shire Hall for handling. Some essential work is required to facilitate the co-location in addition to implementing one of the options. Three costed options have been considered.

- Option 1 –NTL:Telewest - Special Rate Services (non-geographic number)
- Option 2 - Fully integrated VoIP Solution
- Option 3 - BT Diverts

3.2 Findings

Option 1 presents the lowest initial and ongoing costs but requires some telephone renumbering to be undertaken (including the main WDC switchboard number). Option 1 also offers real business continuity and resilience to the service. The technology can be implemented within a few weeks however a longer publicity campaign to advertise the new numbers, change stationery etc is required.

Option 2 optimises VoIP connectivity between WDC and WCC. It has the highest initial costs. It offers some business continuity but introduces more points of failure. Technical timescale of 2- 4 months to permit sufficient testing

Option 3 retains the existing infrastructure and relies on BT to divert the calls to Shire Hall. This option offers no business continuity. On-going costs may very well escalate and cannot be controlled as they are a product of BT charge rates and call volumes. BT call diverts can be implemented within a few weeks.

3.3 Recommendation

The required work should be undertaken to facilitate the co-location.

Option 1 is recommended for the following reasons:

- Real business continuity permits immediate rerouting of calls and fewer points of failure
- All 0845 calls charged to customer at local rate
- Potential for WDC to reuse existing DDI numbers
- Lower initial and ongoing costs
- Potential for cost savings
- Will have to renumber DDI and switchboard to 0845 numbers.

4 Introduction

4.1 Background

The CSC Co-location project has reviewed options and costs for transferring Warwick District Council switchboard and customer service centre calls. These calls are currently handled by the Warwick District Council Customer Service Centre at Riverside House, Leamington Spa and after collocation will need to be handled by WDC staff at the Warwickshire County Council Customer Service Centre at Shire Hall, Warwick.

Meetings have been held between WCC, WDC and representatives from Amillan (WCC VoIP supplier), Nextiraone (WDC VoIP supplier), NTL Telewest and BT. From these discussions, a series of solutions have been developed. The solutions include essential work plus a range of options, from which 1 must be selected. This report will outline the options and provide a recommendation on the way forward.

4.2 Telephony Requirements

- Receive all calls from 45 WDC DDIs and switchboard 01926 45000 number (16 channels) in Shire Hall CSC
- Handle approx 330,000 WDC CSC telephone calls per year (45% on 01926 450000 and 55% on DDIs).
- Duplicate existing call features and handling currently provided by WDC MacFarlane in WCC Macfarlane.
- Transfer calls back to WDC as required.

4.3 Constraints

- WDC Staff relocated to WCC CSC at Shire Hall
- WDC CSC and switchboard and WCC CSC calls will be handled by WCC Macfarlane ACD at Shire Hall. This ACD has been upgraded with a card to support another 60 channels.
- WDC Macfarlane ACD call handling routines rebuilt in WCC Macfarlane ACD at Shire Hall.
- The primary telephony connection between WDC and WCC is a 10 Mb Broadband line. There is a secondary 2Mbit DPNSS connection via Holly Walk to give resilience. Calls will be transferred back to WDC from WCC using the existing 57 prefix with the WDC extension number.

4.4 Required work

The following work is required, irrespective of which of the options below is chosen:

- Install 2 DPNSS links between WCC ACD 60-channel card and WCC OmniPCX. WCC will complete this cabling
- Create a H 323 trunk between WDC and WCC, configure routing and firewall to permit transfer of calls back to WDC from WCC via primary route. Nextiraone, WDC's VoIP supplier, and Amillan, WCC's VoIP supplier will be required for this.
- The WCC VoIP system will require additional Compressor facilities to carry additional voice traffic between Shire Hall and Riverside House. Costs TBA.

4.4.1 Costs of Required work

- Nextiraone work to install, configure and test H323 connection, £3,200
- Amillan work to configure and test H323 connection is covered by existing contract - £0

- 2 new DPNSS connections between WCC ACD and WCC OmniPCX, £600
- 20 Additional compressors for H323 connection supplied and installed by Amillan, £1,790.24
- WCC and WDC technical Firewall support resource to configure H323 connection
- WCC telephony resource to cable up DPNSS between the WCC ACD 60-channel card and the WCC OmniPCX.

4.5 3 Possible Options

There are 3 options considered for this report. Each option considers transference and handling of calls received on the main 01926 450000 switchboard number and on the 45 published CSC DDI numbers. Each option with address: solution overview, approach, indicative timescales, risks, benefits, disadvantages, project costs to implement the solution, ongoing annual costs.

Supporting documentation will be found in the Appendices.

5 Option 1 –NTL:Telewest - Special Rate Services (non-geographic number)

5.1 Overview

This option utilises a non-geographic numbering service provided by NTL. WCC have an agreement with NTL for special rate services and this can be extended to cover CSC collocation. This option would require WDC to renumber its main switchboard and CSC DDI numbers to new 0845 numbers. The new numbers would point directly to Shire Hall and the WCC ACD would be configured for those numbers.

Call announcements would be placed on the existing numbers advising of the change and the new number. The existing 45 DDI numbers would be internally transferred to Shire Hall voice mail for 1 year, after which time the DDI number could be reused within WDC. The 16-channel 01926 450000 number would be answered by play-only answer-machines (1 per channel) at WDC. This main number takes over 160,000 calls per year and although it could be transferred internally to Shire Hall voicemail, this extra volume would overwhelm the telephone network with adverse effects to both WDC and WCC. After a year the 16 channels on the 01926 45000 number could be reduced, reducing rental charges.

5.2 Approach

- Setup NTL SRS call plans
- Map new number to old numbers
- Notify all of telephone number changes
- Build Macfarlane scripts to 0845 numbers
- Make voicemail recordings
- Cut over
- After agreed period take DDIs out of service
- Decommission 16 Channel 01926 45000

5.3 Timescales

- NTL contract with WCC for Special Rate Services (non-geographic numbers) already in place..
- WDC approval for changing telephone numbers.
- PR to advise public of number changes, change stationery etc.
- Extra 0845 numbers are available in blocks of 50. NTL can supply within a few days

5.4 Risks

- Changing public facing DDIs and switchboard telephone numbers may be unpopular.
- Costs and timescales associated with number change (advertising, stationary etc) are undefined.
- WCC IP Broadband connection might not be large enough for all communications initially as it will be carrying old DDI redirects to voicemail (from WDC to WCC) plus transferred 0845 switchboard calls (from Shire Hall to WDC). As people become familiar with the new DDI numbers the amount of old DDI redirects to voicemail will reduce.

5.5 Benefits

- NTL SRS service includes the following at no cost to WCC
 - Call queuing – a queue system with messaging can be configured for customers on hold.
 - Call reporting – web based management reporting for all calls that pass through the system.
 - Messages – ability to configure messages to give information and advice, eg evacuation messages etc.
 - Call Diversion – instant diversion of calls to another location, managed by WCC.
 - Real-time replication of configuration and routing data by NTL to avoid downtime
- All 0845 calls are charged to caller at local rate
- NTL-hosted internet web-site with password controlled access, for WCC technical support staff to configure and manage the service.
- Improved business continuity and resilience
- Potential to reuse DDI numbers within WDC
- Potential to reduce number of WDC telephone channels
- 0845 numbers can be implemented quickly and thoroughly tested prior to move.

5.6 Project Costs

- 16 answer-machines for use at WDC , eg BT Response 75 Answer Machine (£20 each from ESPO), £320
- WCC Voicemail accounts (1 per service)
- WCC Telephony support resource to configure SRS service with new numbers
- Nil NTL cost. Caller pays for 0845 calls at local rate and NTL raise income by carrying calls for other telephone companies. This, and OFCOM legislation, allows NTL to offer public sector bodies 0845 services at no cost.

5.7 Ongoing Costs

- WCC Telephony support resource to manage SRS service.
- Potential to reduce WDC rental for telephone channels

5.8 Disadvantages

- Must change to 0845 telephone numbers
- Communication project to manage renumbering is required

6 Option 2 - Fully integrated VoIP Solution

6.1 Overview

This option utilises VoIP telephony to receive the calls at Riverside House, to route WDC CSC and Switchboard calls to Shire Hall and to route other calls to the WDC extensions. The VoIP solution also offers some business continuity.

An Alcatel media gateway will be installed at Riverside House by Amillan. This gateway will connect to the ISDN 30 trunks coming into Riverside House and determine where to route the calls: WDC CSC calls being routed over the WCC IP Broadband link to Shire Hall whilst other calls pass to the new WDC Cisco VoIP system at Riverside House.

Calls passed to Shire Hall will connect to the existing Alcatel-Lucent OmniPCX Enterprise system at WCC before being seamlessly pushed to the WCC Macfarlane ACD and the Shire Hall CSC. CSC agents receiving calls for elsewhere on the WDC network will be able to transfer the calls back to WDC extensions via the VoIP broadband network.

The Alcatel-Lucent OmniPCX system at WCC will monitor the WCC ACD and will route calls directly to agent extensions in the event of ACD failure. Such agents will require VoIP telephones, headsets and licenses.

6.2 Approach

- Install Alcatel Media Gateway at WDC
- Build Macfarlane scripts to 01926 45000 and DDI numbers
- Install VoIP phones to WCC CSC
- Test new infrastructure
- Cut over

6.3 Timescales

- Installation of Alcatel Media Gateway approx. 6 week lead- time from Amillan after receipt of order.

6.4 Risks

- Increased points of failure – less resilience
- Limited opportunity to improve WCC ACD resilience

6.5 Benefits

- Retain existing WDC numbers.
- Use of new VoIP technology

6.6 Disadvantages

- More points of failure – less resilience
- Business continuity offered by use of Alcatel OmniPCX applies from that point forward - does not mitigate against disruptions within WDC.
- Less potential to rationalise and reuse WDC DDI numbers
- Large initial expenditure
- Considerable infrastructure testing is required

6.7 Project Costs

- Alcatel Media Gateway , installed and supplied by Amillan £13,125.93
- 60 VoIP telephones, headsets and licenses , supplied by Amillan £9,430.50
- WCC CSC support resource to build scripts on WCC ACD
- WCC telephony support to configure OmniPCX for ACD resilience

6.8 Ongoing Costs

- Amillan Software Maintenance Service for Alcatel Media Gateway £152.25 per year
- BT charges for 45 WDC DDIs and main switchboard numbers

7 Option 3 - BT Diverts

7.1 Overview

BT to redirect main 01926 450000 number to Shire Hall. DDI numbers to be diverted in blocks of 10 to Shire Hall.

Calls would be transferred back to WDC via H323 connection to WDC Cisco VoIP system.

7.2 Approach

- Build Macfarlane scripts to 01926 45000 and DDI numbers
- Arrange switchover dates with BT
- Cut over

7.3 Timescales

- BT require approximately a week's notice to redirect numbers

7.4 Risks

- No opportunity to improve WCC ACD resilience
- Dependent on BT costs – cannot control costs as must pay BT line charges.
- Disruption to WDC business caused by loss of 235 DDI numbers

7.5 Benefits

- Retain existing WDC numbers
- Little infrastructure testing required

7.6 Disadvantages

- Poor business continuity – no ability to increase WCC ACD resilience
- Ongoing large expenditure
- Disruptions to WDC as 235 DDIs lost. DDIs can only be transferred in blocks of 10. The 45 DDI numbers fall in 28 blocks of 10 (total 280 DDI numbers). 235 DDI numbers would have to be transferred to Shire Hall also and would cease to be available to WDC.
- WDC must pay call charges for diverted calls

7.7 Project Costs

- WCC CSC support resource to build scripts on WCC ACD

7.8 Ongoing Costs

- Call diversions on 01926 450000 switchboard number. Approx £300 per year.
- Call charges for diverted part of switchboard call (assume local rate on 160,000 switchboard calls) Assume each call is charged to WDC at 5p, £8,000 per year.
- Call diversions on DDI numbers (in blocks of 10). Approx £8,450 per year.

- Call charges for diverted part of DDI call (assume local rate on 170,000 CSC calls) Assume each call charged to WDC at 5p, £8,500 per year.
- Existing BT charges on 01926 450000 and DDI numbers

8 Appendix A: NTL: Telewest SRS offering

8.1 Overview

NTL:Telewest have recently began to provide non-geographic number services to Warwickshire County Council via their SRS offering. NTL:Telewest offer several types of SRS numbers including 0800, 0845 and 0300 numbers, which have the following features:

- Call queuing – a queue system with messaging can be configured for customers on hold.
- Call reporting – management reporting data for all calls that pass through the system.
- Messages – ability to configure messages to give information and advice, eg evacuation messages etc.
- Call Diversion – instant diversion of calls to another location, managed by WCC.
- NTL-hosted internet web-site with password controlled access, for WCC technical support staff to configure and manage the service.
- All data and configuration held by NTL is replicated to avoid downtime.

0800 numbers are free for the caller with the cost being picked up by the business. 0300 numbers are specifically for public sector only, with the call charge being shared by caller and the public sector body. 0 845 calls are charged to the caller at local rate (similar to the local rate many WDC callers would pay when calling WDC) and there is no extra cost to the business. There is no other charge for the SRS service: NTL:Telewest are able to offer the SRS service free of charge to WCC because NTL:Telewest cross-charge other call providers for handling 'the other call provider's calls' over cheaper ntl routes.



Special Rate Services

Telewest Business has developed a suite of Special Rate Services solutions that empower organisations to better control and manage their inbound traffic.

