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Infrastructure Fitness and Design Simplicity for IBM Mobile Connect

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Agenda

- Introduction
- What is IBM Mobile Connect?
- Deployment of IBM Mobile Connect
- Configuration of IBM Mobile Connect
- Troubleshooting, Pitfalls, and Tuning
- Wrap-up with Q&A



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About Us

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<http://www.midpoints.de>
- Specialized in RCP development, XPages development and building mobile infrastructures
- IBM Design Partner for Notes/Domino Next and Mobile
- OpenNTF Contributor
 - File Navigator (<http://filenavigator.openntf.org>)
 - Generic NSF View Widget for IBM Connections



About Us...

- Bill Malchisky Jr.
- Chief Technical Architect and Managing Partner of Effective Software Solutions, LLC
- Noted regulatory compliance expert in the field
 - Designed disclosure response solutions for FORTUNE 500, medium-sized, and small established regulated firms
- Written multiple articles on compliance and eDiscovery
- Speaker at 20+ Lotus related conferences/LUGs
- Co-authored two IBM Redbooks on Linux
- Domino specialty project experience
- IBM Design Partner for IBM Notes/Domino Next and Mobile



IBM CHAMPION 



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Quick Survey

What's your IBM Mobile Connect experience?

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- Introduction
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- Deployment of IBM Mobile Connect
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What is IBM Mobile Connect?

Client and Clientless VPN

- Client-Server service for a wide range desktop/mobile platforms
- Clientless service for HTTP based application

Network Choices

- Supports a worldwide selection of wireless and wireline network technologies, enabling a worldwide scope of connectivity for mobile users
- Operate over networks: non-IP, IPv4, wired or wireless, future IPv6

Seamless Cross-Network Roaming

- TCP applications have session persistence across physical networks
- Provides access to critical applications anytime/anywhere in a highly secure manner

Security Features

- Strong authentication and support for RSA Secure ID
- End-to-end FIPS 140-2 certified AES encryption

Network Optimization

- Reduces data transmission costs over wireless networks
- Improves speed, reliability, and end user experience

Scalable and Reliable

- Supports gateway clustering, and can distribute across multiple sites, to scale with your mobile needs



What is IBM Mobile Connect?

- **Connection Manager (server-side)**
 - Software that runs on the server and controls access to enterprise resources Support for IP and non-IP network protocols
 - Mobile Network Connections (MNC) for combinations of public/private networks

- **Distributed Administration (“Gatekeeper”)**
 - Java based administrator console that can run on various platforms Policy Management is an integral part of Administration

- **Mobility Client (client-side)**
 - Software that runs on the mobile device and interfaces to Connection Manager Mobility Client authenticates and establishes VPN with Connection Manager Includes toolkit for creating network-aware applications

- **HTTP Access (client-less)**
 - HTTP access services provide a SSL secured tunnel for HTTP communication to any HTTP Version 1.1 application

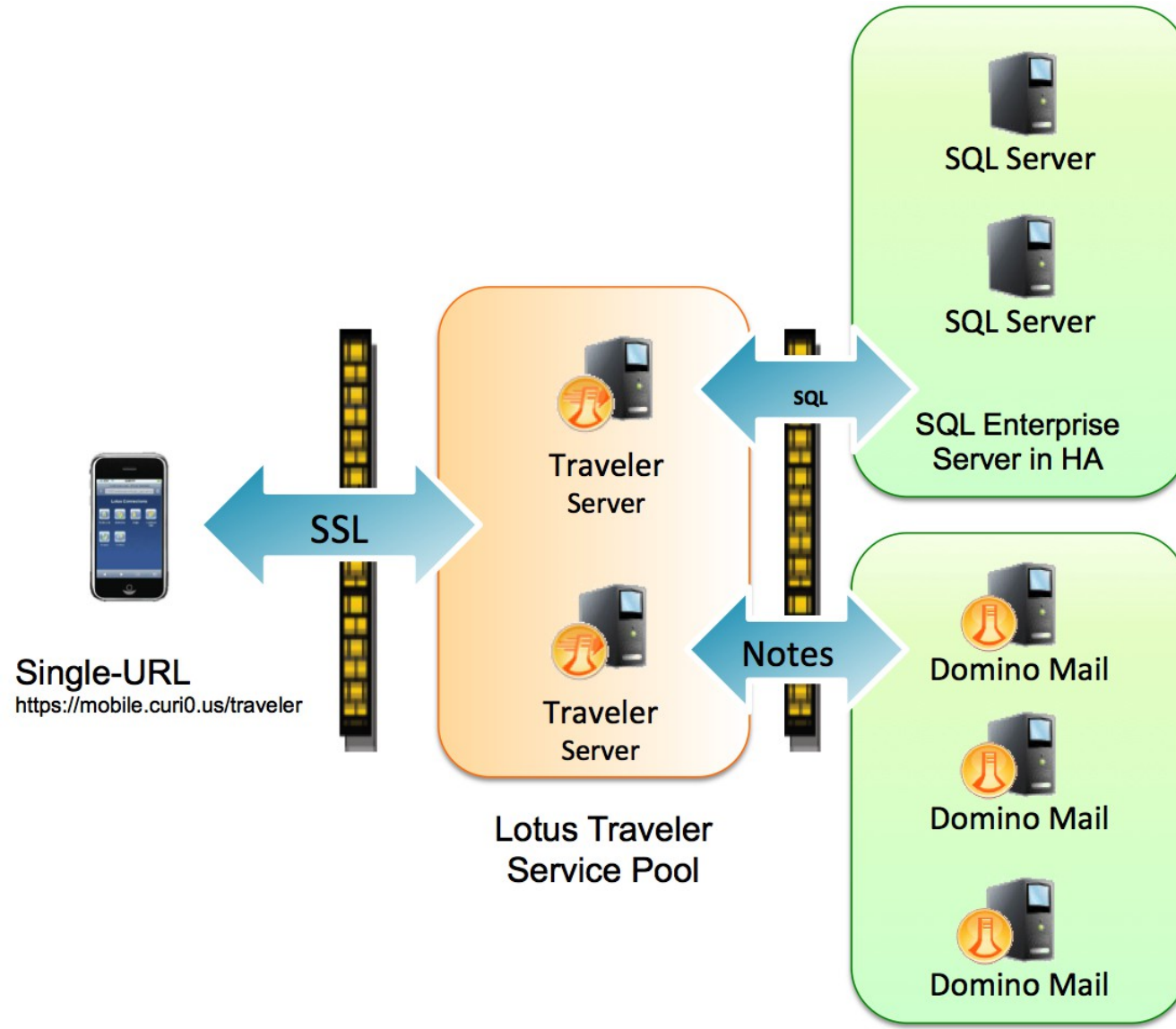


Lotus Mobile Connect 6.1.4 to IBM Mobile Connect 6.1.5

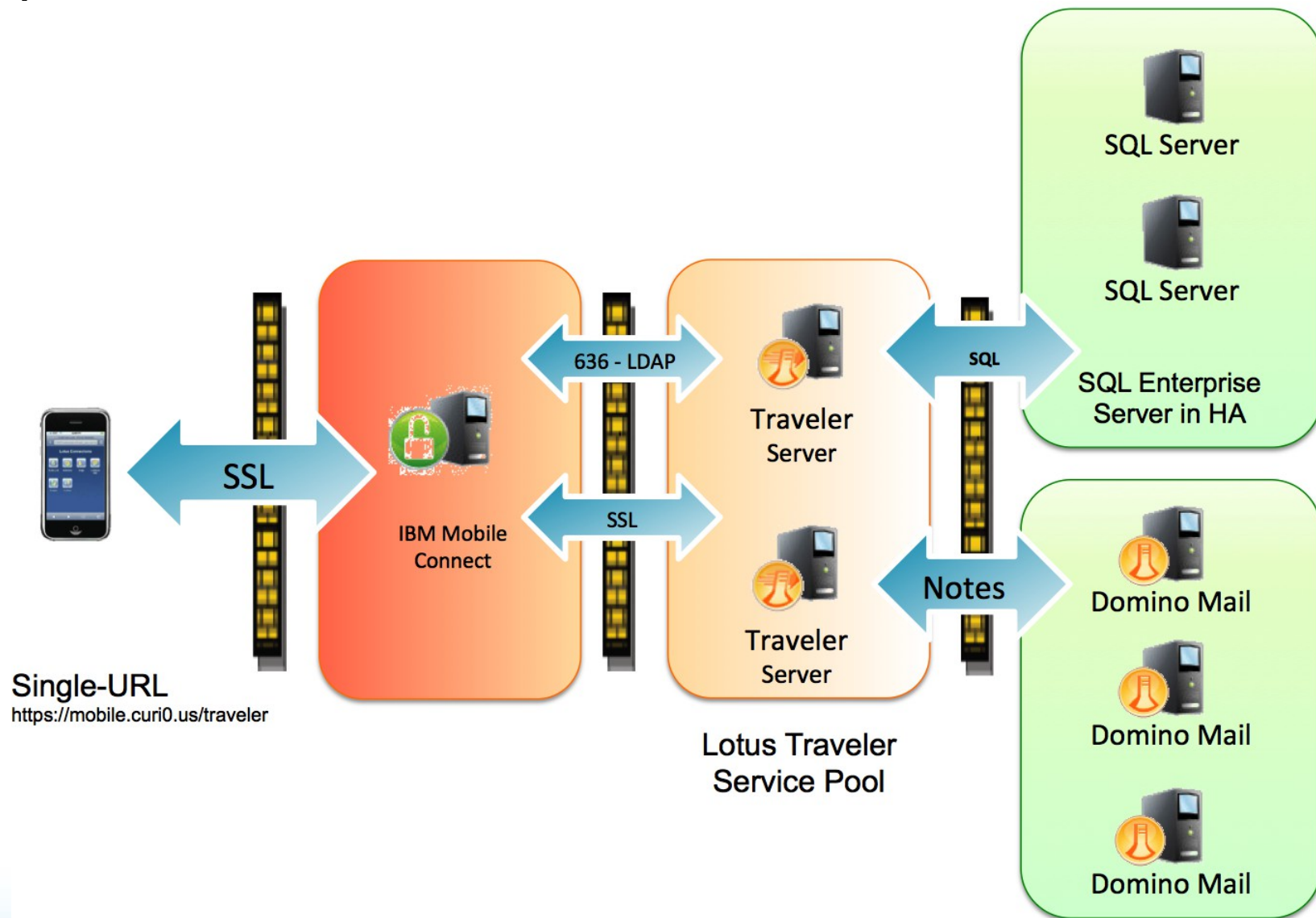
- Native 64-bit support of Gateway for multiple platforms (Windows, Linux, AIX)
- Support for Android 4 (VPN client)
- HTTP Access Single URL support
 - IBM Notes Traveler HA, IBM Connections Mobile, IBM Sametime Mobile
- HTTP Access URL rewriting
 - IBM Notes Traveler HA, IBM Connections Mobile, IBM Sametime Mobile
- 64-bit kernel support for Mac OS X 10.6 and 10.7, support for Mac OS X 10.8



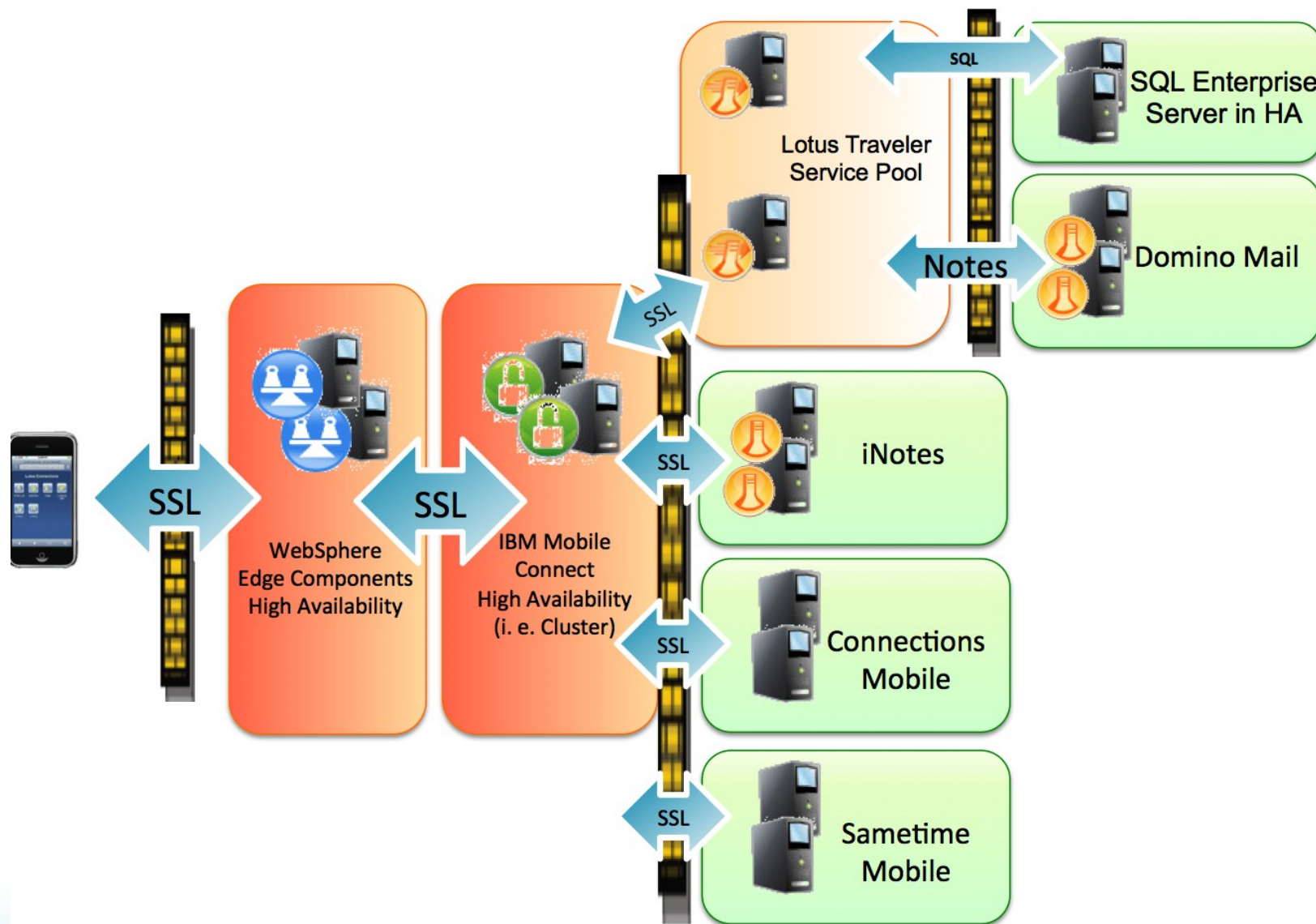
Example: Traveler HA without IBM Mobile Connect



Example: Traveler HA with IBM Mobile Connect 6.1.5



Example: Full ICS Infrastructure with IBM Mobile Connect 6.1.5



Benefits

- Seamless integration with existing IBM Collaboration products
- Simple, straightforward GUI-based setup
- Client support for any main operating system
 - Windows, Mac OS X, Linux, Android, iOS



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License Updates Positively Impact Customer Cost

- Enterprise Domino license includes the IMC CALs
- Still need the server license, based upon PVUs
- New for Notes 9 – update to the latest IMC version
- WebSphere ND9 entitlement changes
 - WebSphere Edge components included with ND9
 - Permitted to use all components of WebSphere Network Deployment ND
 - WAS ND provided to Domino Enterprise Server and Domino Collaboration Express licenses

Hardware Requirements – AIX

System Name	Platform	Memory	Disk Space
IBM System p™	X64 POWER™ 7 w/ 2-4 processors	4GB	1 GB local 1 GB logging CM 100MB logging GK

Hardware Requirements – Linux

System Name	Platform	Memory	Disk Space
IBM System x™	Intel Xeon or equivalent Quad core suggested Intel Pentium 4+ at 2GHz	4GB	1 GB local 1 GB logging CM 100MB logging GK

Note: Linux is supported on the Intel platform only

Hardware Requirements – Solaris

System Name	Platform	Memory	Disk Space
Sun SPARC	Sun Blade 2055 UltraSPARC IIIi at 1.6GHz	4GB	1 GB logging CM 100MB logging GK

Hardware Requirements – Windows

Product Name	Platform	Memory	Disk Space
Connection Manager	Intel Xeon, Pentium 4, EM64T AMD Opteron	4GB	1 GB disk space plus 1 GB logging CM
Gatekeeper	Pretty much any modern day system		100MB logging GK

Hardware Requirements – Mobility Client

System Name	Platform – Memory Disk Space	
Android	If it can run Google Android 4+, then you are fine	
Linux Desktop	Pretty much any modern computer	25MB disk space
Mac OS	Any Macintosh computer capable of running Mac OS 10.6+	
Windows	Pretty much any modern computer	5-10 MB disk space
Nokia Devices	Nokia 9300, 9300i, 9500 Communicator Nokia E50, E51, E55, E52, E60, E61, E61i, E62, E66, E70, E71, E71X, E72, E75 or E90	500KB disk space

Operating System Requirements – 6.1.5

Environment	Connection Manger	Gatekeeper	Mobility Client
AIX	5.3, 6.1, 7.0	6.1, 7.0	N/A
Android	N/A	N/A	Android 4.0+
Linux – Red Hat	RHEL 4.0 ES/AS RHEL 5.0 ES/AS RHEL 5.4 ES/AS RHEL 5.8 RHEL 6.1, 6.2, 6.3	RHEL 4.0/5.0/5.4/6.0/ WS/ES/AS	RHEL 4.0/5.0/5.4/6.0/ 6.2 WS
Linux - SuSE	SLES 9, 10, 11.0, 11.1, 11.2, 11.3	SLES 9, 10, 11, 11.1, 11.2, 11.3 SLED 11.0	SLED 9, 10, 11 OpenSuSE 12.1
Mac OS X	N/A	N/A	OS X 10.6, 10.7, 10.8
Solaris	Sun Solaris 9, 10	Sun Solaris 9, 10	N/A

- Technote – <http://www-01.ibm.com/support/docview.wss?&uid=swg27036593>

Operating System Requirements – 6.1.5, Continued

Environment	Connection Manger	Gatekeeper	Mobility Client
Windows	Server 2008 Server 2008 R2 Server 2003 Server 2003 R2	Server 2008 Server 2008 R2 Server 2003 Server 2003 R2 Windows 7 Windows Vista Windows XP Windows 2000	Windows 7 Windows Vista Windows XP Windows 2000 Windows Mobile 6.1 / 6.5 Windows Mobile V5 and V6 Smartphones and Pocket PC Windows Mobile 2003 / 2003 SE Pocket PC Editions

- Technote – <http://www-01.ibm.com/support/docview.wss?&uid=swg27036593>

Supported Storage Software - RDBMS

Software Type	Options
RDBMS	<ul style="list-style-type: none">DB2 Universal Database 9.8DB2 Universal Database 9.7**DB2 Universal Database 9.5DB2 Express-C 9.5DB2 Universal Database™ 9.1DB2 Express-C 9.1DB2 Universal Database™ Express Edition 9.1Oracle 9.0.1, 9.2.0.1, or 9.2.0.2, with the DataDirect Connect ODBC Version 5.3Oracle 10g Release 1 or 10g Release 2, with the DataDirect Connect ODBC Version 5.3 (Support for DataDirect drivers)Microsoft® SQL Server 2005Microsoft SQL Server 2005 ExpressMicrosoft SQL Server 2008Microsoft SQL Server 2008 Express

** Notations next slide

RDBMS Notations

- DB2 Requires an ODBC RDB client to store session data
- DB2 9.7 on x64 Windows Server requires FP6 or better
 - Resolves an installation verification check failure with the DB create wizard
- ONLY use DataDirect ODBC Oracle Wire Protocol Driver
 - Client Mode Driver is UNSUPPORTED
 - Phasing out going forward, included for Solaris support
- DB2 with Connection Manager – install either DB2 Administration Client or Application Development DB2 Client

- Full Details located here:
 - <http://www-01.ibm.com/support/docview.wss?&uid=swg27036695>



Supported Storage Software - Continued

Software Type	Options
LDAP	IBM Tivoli Directory Server 5.2 IBM Tivoli Directory Server 6.0 IBM Tivoli Directory Server 6.2 IBM Tivoli Directory Server 6.3
LDAP-BIND	Secondary authentication on version 3 LDAP-compliant servers: IBM Domino, IBM Tivoli Directory Server, Microsoft Active Directory
Virtualization	POWER Hypervisor on AIX, Red Hat Enterprise Linux (RHEL), SuSE Linux Enterprise Server (SLES) VMWare Workstation on Windows, RHEL, and SLES VMware ESXi Server on Windows, RHEL, and SLES VMWare ESX Server on Windows, RHEL, and SLES RedHat Xen Virtualization (or current offering) on Red Hat Enterprise Linux and Windows
Local File System	Selected for test environments, proof of concept with less than 100 users

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Configuration options of IBM Mobile Connect 6.1.5

- Single URL support and URL rewriting for IBM Notes Traveler, IBM Connections Mobile and IBM Sametime Mobile
- Directory services (any LDAP v3 directory, also available on pre-6.1.5)
- Secure SSL communication between IMC and backend server (also available on pre-6.1.5)



Configuring IBM Mobile Connect 6.1.5 – HTTP Access Services

The Service tab

- This Service URL will be used on a device to connect to IBM Mobile Connect
- Enter the directory and file name of the key database and the stash file

The screenshot shows the configuration window for an HTTP Access Service. The window title is "HTTP Access Service - http-service0 - imc1.curi0.us". The "Service" tab is selected. The configuration fields are as follows:

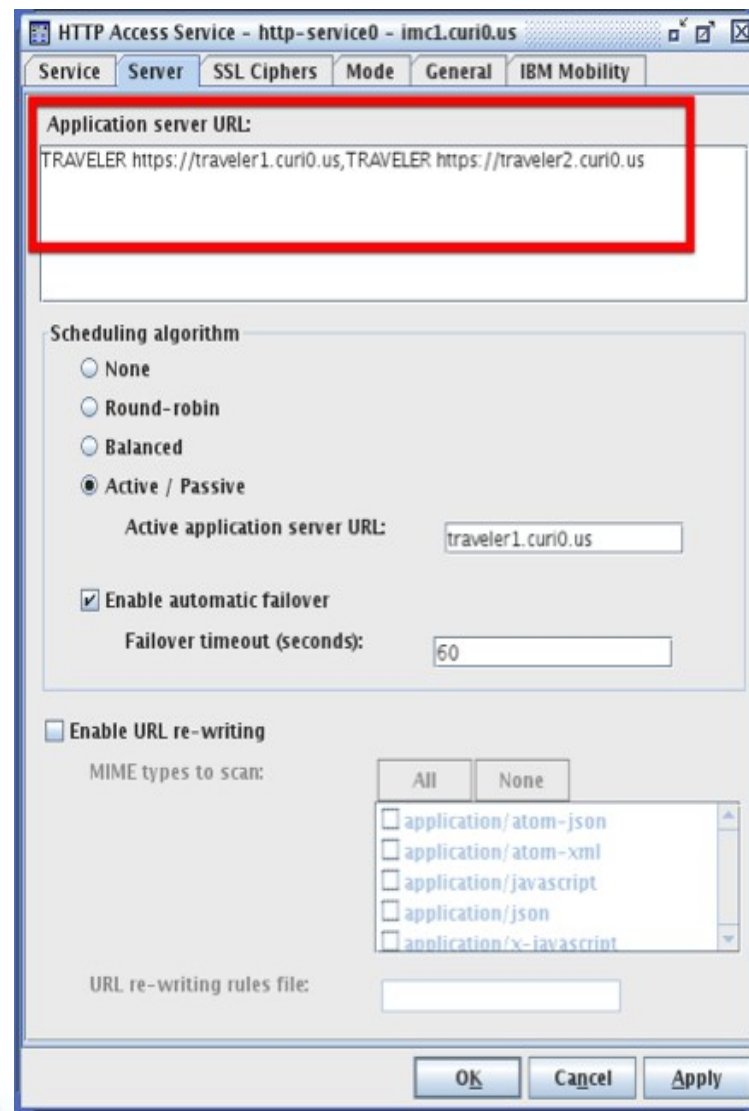
Field	Value
Connection Manager:	cn=imc1.curi0.us,o=midpoints
Service URL (https://):	https://mobile.curi0.us
TCP port to listen on:	443
Description:	HTTP authentication service
File name of key database:	onManager/imc-mobile.kdb
File name of stash password:	/opt/ibm/ConnectionManage
SSL handshake:	<input checked="" type="radio"/> Server session <input type="radio"/> Server session with client auth <input type="checkbox"/> Match user id with subject key? <input type="radio"/> Server session with client auth Critical
SSL read TIMEOUT (msec):	25
SSL client connection setup TIMEOUT (msec):	20000
SSL server connection setup TIMEOUT (msec):	10000

Buttons: OK, Cancel, Apply

Configuring IBM Mobile Connect 6.1.5 – HTTP Access Services

The Server tab

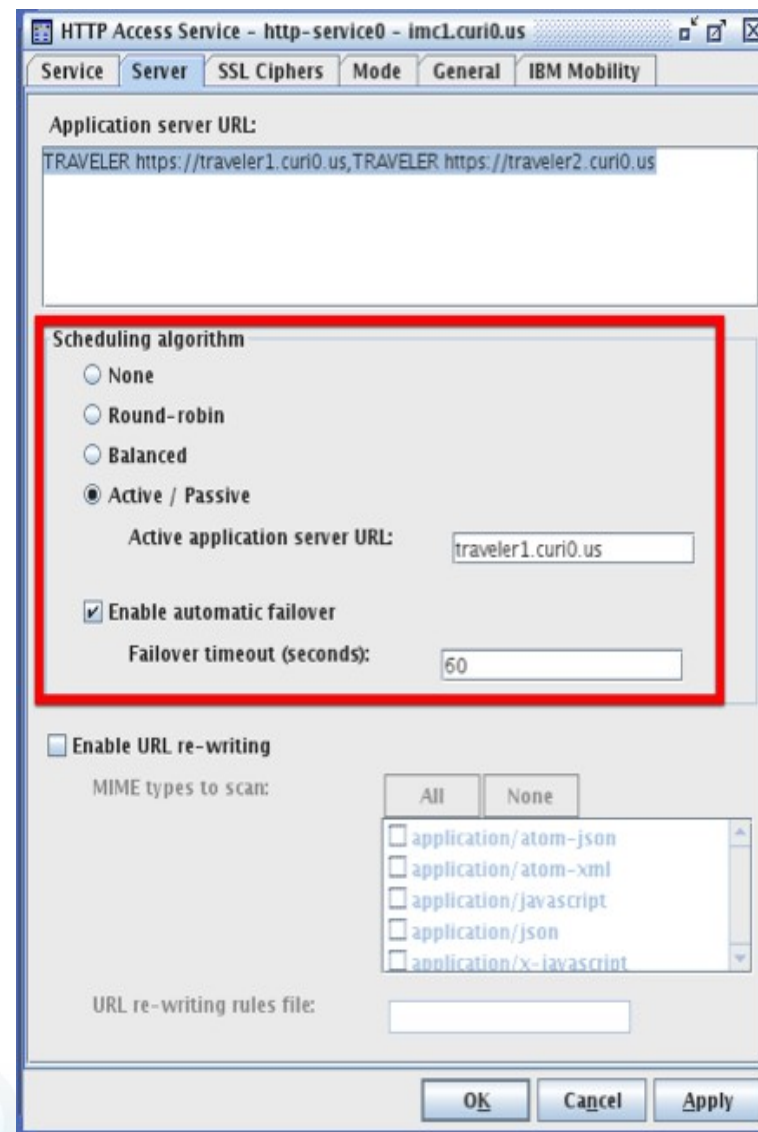
- The “Application server URL” defines the backend systems to which requests are getting forwarded
 - The systems are separated by comma.
 - There are keywords to define the type of the used backend system:
TRAVELER, CONNECTIONS, SAMETIME INOTES
 - IMC will look for specific path requests when using keywords; otherwise it would determine the type by itself which would cost some more cycles



Configuring IBM Mobile Connect 6.1 5 – HTTP Access Services

The Server tab

- The “Scheduling algorithm” defines how load balancing and fail-over take place
- Round robin:
pure round robin distribution
- Balanced:
Requests are balanced based on active users or connections
- Active/Passive:
IMC uses one server or the other
 - Enabling automatic fail-over with a value of “0” forces IMC to fail-over immediately.



Configuring IBM Mobile Connect 6.1 5 – HTTP Access Services

The Server tab

- URL rewriting allows to rewrite internal URIs to external URIs. A dedicated rules files needs to be set up
- Rewriting for Traveler isn't supported due to the encrypted stream



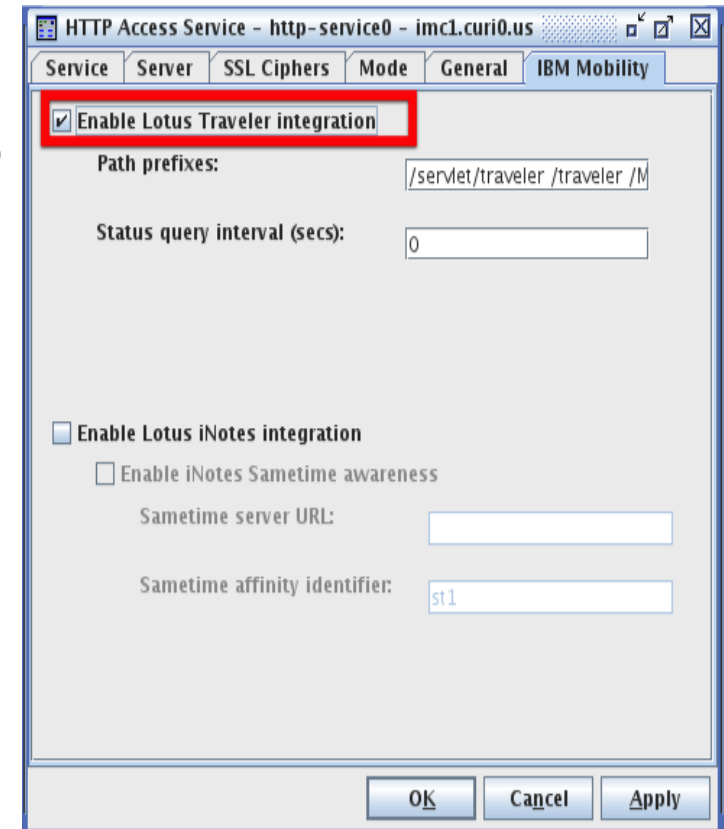
Configuring IBM Mobile Connect 6.1.5 – HTTP Access Services

The IBM Mobility tab

- By enabling the “IBM Notes Traveler integration” checkbox, IBM Mobile Connect knows that requests to

`/traveler` or `/servlet/traveler`

are Traveler specific and will forward these requests to the defined TRAVELER servers.



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A Complete (x64) Build Is A Content Build

- Running Linux? You must ensure needed i386 library files exist
 - Otherwise Gatekeeper will crash
- Required library files
 - libstdc++ – Java prerequisite
 - libXrender
 - libXft
 - libXmu
 - libXtst
- Ensure xinetd service running
- GateKeeper stills fails to launch?
 - Check in `~/ .wgcfg` for StdErr.txt which should missing compatibility libraries needing installation
- Technote – <http://www-01.ibm.com/support/docview.wss?uid=swg21616655>
 - “Gatekeeper may not install or run on a 64-bit Linux Distribution without the correct libraries”



Log Entries

- "(The partner closed the socket before the protocol completed)"
 - Error is benign
 - Tends to happen a lot with browser traffic
- LDAP FN search query returns this format - "LDAP:john.doe@fooinc.com"
 - IMC local stored format – can ignore; everything is working fine
- Failed connecting to your traveler server. SSL error, 414 (paraphrasing)
 - IMC doesn't trust the certificate
 - Users get rejected rather than prompted to accept the cert
 - Self-signed certs are great for testing, but require extra configuration steps
 - Import the self-signed certificate into the IMC key store – Imc.kdb
 - Connect to server via browser → accept cert → export into DER format via the cert manager
 - Next, use IMC's keymanager to add that cert as a Signer certificate
 - Restart IMC to reload the Imc.kdb file
 - **Note:** *as the IMC is a server/daemon process, it is unable to respond to accept the cert*



Log Entries – Continued

- 23910:-400946288 (Apr 13 2012/20:26:56.8244)[S-AUTH]AUTH_Server:
authenticate rc=8
 - A common cause: credential failure on the admin bind for the DSS server
 - IMC won't clear it until you change the admin ID/password or restart IMC
 - Counter-intuitive but intelligent error trapping algorithm



If All Else Fails...

- ... and you need to re-install the IMC
 - You do not need to install again DB2
 - Connection Manager initial configuration option presented, addresses this
 - "Erase existing database (including all tables and data) and create a new database"



LDAP Tips

- When performing LDAP search queries, use the “-x” parameter to explicitly state simple authentication
- LDAP bind authentication method contains a time-out
 - Anything longer than 10 seconds will cause many problems
 - Best practice – Bind and search should be less than 500 msecs
- Debugging LDAP API issues (on Linux)
 - Stop IMC with `wgstop`
 - Start IMC with `LDAP_DEBUG=65535 wgstart >ldap-debug.txt 2>&1`
- To authenticate Notes and Internet Explorer LDAP clients via credentials
 - Enable name and password authentication; anonymous is a cultural choice
 - Source: Details located in the Domino Info center's Troubleshooting section
 - <http://tinyurl.com/ar6dloe>
 - http://publib.boulder.ibm.com/infocenter/domhelp/v8r0/index.jsp?topic=%2Fcom.ibm.help.domino.admin.doc%2FDOC%2FH_NAME_AND_PASSWORD_AUTHENTICATION_FAILS_FOR_LDAP_CLIENTS_CONNECTING_TO_THE_LDAP_SERVICE_STEPS.html



Tips with Certificates

- When disabling SSO, clear cookies in your browser after making the change
- Need the Mail server certificates for iNotes if the mail lies on a different server
 - Relevant for test environments and during cut-over
 - Only for SSL communication to back-end



Local storage on 64-bit operating systems with IMC 6.1.5

- IBM has skipped support for local storage with IMC 6.1.5 on 64-bit operating systems
- You have to setup an appropriate RDBMS when you plan to install IMC 6.1.5 on 64-bit or to migrate an existing LMC 6.1.4 to 64-bit
- Technote –
 - <http://www-01.ibm.com/support/docview.wss?uid=swg27036378>

URL Regex rewriting capabilities or restricted paths

- You can't rewrite URLs based on regex or restrict access to specific paths
- That means i. e. that you can't prevent access to the LotusTraveler.nsf



Availability Index checks for Traveler

- IMC doesn't check the Availability Index of Traveler
- IMC queries its internal database for user assignments and assigns new users to the server with least number of assignments and user based affinity



Using MS SQL as database server for IMC

- The account used to connect to the MS-SQL server needs the right to create databases
- The Installation Wizard provided with IBM Mobile Connect 6.1.5 does not connect to existing databases but tries to create new ones
- After installation, the right to create databases can be removed from this user account



Uninstallation

- The uninstallation of IBM Mobile Connect may delete the ConnectionManager folder
- Backup your `/conf` subfolder, your exported LTPA token and your SSL Key-DBs if you're storing them in the ConnectionManager folder!



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Additional Resources – Part I

- IMC/LMC Wiki –
 - <http://www-10.lotus.com/ldd/lmcwiki.nsf>
- IMC Information Center and Version 6.1.5 Documentation –
 - http://publib.boulder.ibm.com/infocenter/lmc/v6r1/index.jsp?topic=/com.ibm.lmc_6.1.5.doc/home.htm
- IMC Forum –
 - <http://www-10.lotus.com/ldd/mcforum.nsf?OpenDatabase>
- *Enabling secure, remote access to IBM Lotus iNotes using IBM Lotus Mobile Connect* –
 - <http://www.ibm.com/developerworks/lotus/library/notes-mobile-connect/>
- IMC Documentation -
 - <https://www.ibm.com/developerworks/lotus/documentation/mobileconnect/>
- IMC Features and Benefits -
 - <http://www-01.ibm.com/software/lotus/products/mobileconnect/features.html>



Additional Resources – Part II

- *LMC: Providing secure remote access to Traveler servers*
 - http://www-10.lotus.com/ldd/dominowiki.nsf/dx/Lotus_Mobile_Connect_Providing_secure_remote_a
- LDAP Browser – Softerra™ - <http://www.ldapbrowser.com/>
 - Read-only browser is FREE; Administrator tool is commercial
 - Officially supports Lotus Domino, IBM, Red Hat, OpenLDAP, Microsoft Active Directory, and seven more
- LMC Fix List – 6.1.4
 - <http://www-01.ibm.com/support/docview.wss?uid=swg27020327>
- Collecting Core Dumps
 - <http://www-01.ibm.com/support/docview.wss?uid=swg21225312>



Related Session

- SHOW101 – Making IBM Traveler Highly Available - Part 2: Extending and Securing The Network
 - Speakers: René Winkelmeyer - midpoints; Detlev Pöttgen – midpoints
 - Room: Swan Osprey 1 & 2
 - Track 11: Show 'n Tell
 - Date: Tuesday, 29 January (for reference)
 - Covers installation of IMC as a compliment to this session



Linuxfest Returns!

**Back for another informative all-inclusive Linux session in 2013
Join Bill Malchisky, Wes Morgan, and guest Daniel Nashed!**

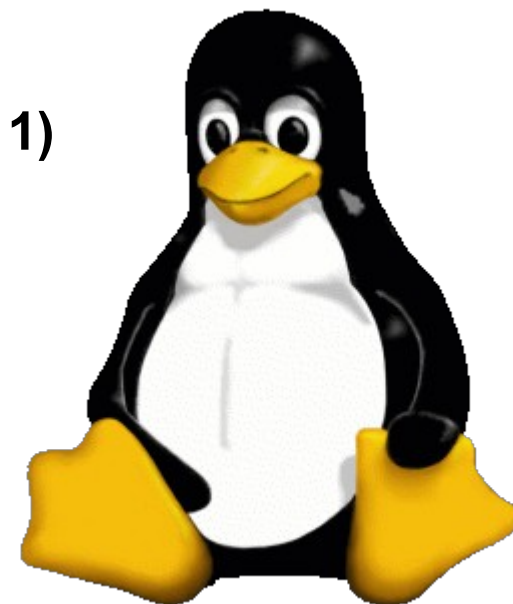
When: TODAY, Thursday, 31 January

Where: **Dolphin Hotel - Sum Chow's (Next to Picabu, Level 1)**

Time: 12:15 - 1:30 pm

Other: Bring your box lunch!

We're not in the program guide, so mark your calendar, or
See our listing in the ConnectOsphere agenda Notes app



Special thanks to Red Hat for providing our session swag!

Q & A

- Now and here
 - Get the mic!

- Later
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