OpenChange

Ambitious Ace of Spades

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1.
OpenChange
vs
Magic

1. OpenChange vs Magic

- I came to magic one year ago
- **I was practicing while waiting for Samba to compile**
- Gave me plenty of time to practice

1. OpenChange vs Magic

- **Developers are similar to magicians** in many ways:
  - Anyone can claim to be magician
  - What kind of magician/developer are you?
  - **Creative process**
    - Same results but different techniques
    - Easy implementation improves reliability
  - **Show me the {code, tricks}**

1. OpenChange vs Magic

- **The geek attitude**
  - *Big bang theory*
  - Both have very specific languages nobody understand
- **Communities vs individuals**
  - How to be sure nothing similar aleady exist?
  - Improvement is tricky when nobody shares experience or culture

1. OpenChange vs Magic

- **GPL License vs Magician secret**
- Magicians rarely give away secrets for free
- But they can rely on magic reviews to describe techniques, moves, tricks and claim parternity

- When you buy a secret, you are free to reproduce it for personal or non-profit purposes.
- You can improve the existing trick as long as you refer to the original author
- However you can't use it for commercial show unless expressed written permission is provided

1. OpenChange vs Magic

- OpenChange and Samba are similar to someone trying to figure out the inner working of a magic trick
- **Context:**
  - the magician never revealed his secret so far
- **Process:**
  - step by step try to reproduce the same effect until the public's reaction is similar to the original
- **Improvement:**
  - When this primary goal is reached, try to improve it to offer features/effect the original can't

1. OpenChange vs Magic

- **Revelation:** At some point the magician reveals his own method and everyboy can access it (WSPP doc)

- **Does this break the magic?**
  - The hacking process is different
  - Specifications give a context but your design makes the whole difference
  - Most people are not DIY experts and rather use your working solution than develop their own.

1. OpenChange vs Magic

- **OpenChange is an Open Source Exchange replacement:**
  - **Provide client side libraries** and tools to interact with Exchange servers (5.5 up to 2010)
  - **Provide server code to transparently replace Exchange server**
  - **Runs on top of Samba4**
    - dcerpc/ndr layer, IDL and PIDL
    - talloc and ldb

1. OpenChange vs Magic

- Code under **GPLv3 or later** license
- IDL in public domain
- **105K lines**: small codebase
- Tiny but very friendly development team

- One recurrent question
  - How did you do it?
    - Protocol analysis, motivation
    - Coffee, tons of coffee
    - Comprehensive girlfriend

1. OpenChange vs Magic

- **How you can help?**
- We suffer from the blind preacher complex
  - 60 trial days to do the work
  - **MSDN access would be much appreciated**
- **Provide Services**
  - Victims of our own success?
  - We tortured Exchange, wheel of fortune turned its back to us :(
- **Developers**
  - Join us ... we are nice people
  - This is a fun project and we embrace you
- **Website manager / editor**
  - We only leave our cave a couple of times a year


2.
MAPI
Library

2. MAPI Library

- LIBMAPI matured well
- Stable and established code base
- **It is « production ready »**
  - We are way beyond core features people expect
  - We have a pretty decent **protocol/implementation testing tool** both for client and server side
  - **Only 35 ROPs to implement (121 done)** – some remaining are deprecated or server to server specific

2. MAPI Library

- **Memory leak fix**
  - OpenChange was a greedy boy stealing in the memory donut's box
  - Valgrind mother taught not to steal
  - OpenChange is now a happy kid with good manners

  - This was truly a critical problem for us
  - We are still not perfect, but **good enough to run on embedded devices properly**

2. MAPI Library

- **Unicode support**
  - We were officially only supporting English
  - I tried to spread French over mailbox's world
  - Other languages and alphabet exist.
- Internationalization ... almost
  - You can send and receive mail in Russian, Japanese, French

2. MAPI Library

- **Cluster Exchange support**
  - Now working properly!
  - Has been tested in large production environment
  - Magic cooking is done internally
  - **RFR protocol integrated within libmapi internal functions**
  - Automatic handling of EcWongServer error code
  - We provide really more than just a API to RPC wrapper

2. MAPI Library

- **Exchange 2010 support**
  - We are compatible
  - It doesn't probably work for 100% cases, but trial versions are not unlimited
  - **Encrypted connection supported**
    - Improves the overall OpenChange client-side code security
    - Mandatory to connect Outlook 2003 clients to Exchange 2010
- We introduced **IDL for Exchange 2007 Connect and DoRpc specific version** (LZXPress blobs)

2. MAPI Library

- **MAPI Sessions and theads**
  - Any number of sessions
  - Up to 255 derivated connections for a single session (logon ids)
  - Sessions can be spread among threads
  - Different thread can use the same session for their connection context
  - Pending lock/unlock patch
  - **libmapi is thread compliant**

2. MAPI Library

- **Exchange notification system**
  - We supported newmail one
    - UDP monitoring port
    - within TCP EMSMDB streams
    - Pending events
  - We now support all of them
  - Non-blocking code with callback mechanism to monitor notifications introduced by Jony Jacob

2. MAPI Library

- **MAPI dissector for wireshark**
  - Has been a request for numerous years
  - Was a nightmare to write
    - «MAPI » is not NDR encoded
    - Most of the code has to be written manually
  - I've been working on **improving code generation at PIDL level**
  - I've introduced numerous (nasty) patch maintained on a specific public repository

2. MAPI Library

- **svn co https://svn.openchange.org/dissector/**

- Add support (pidl and wireshark) for:
  - nodiscriminant union
  - inline arrays
  - astring, nstring
  - LIBNDR_FLAG_NOALIGN flag support
  - LIBNDR_FLAG_STR_SIZE2 string (ascstr3)


3.
MAPIProxy
and
OpenChange Server

3. MAPIProxy and Server

- **2010: OpenChange server year**
- **When will it be ready?**
  - We do not have specific schedule
  - Hopefully Spring 2011
- **What will you provide?**
  - A basic Exchange server replacement
  - Use of external storage/messaging system

3. MAPIProxy and Server

- **Do you have anything working yet?**
  - YES we do
  - server based upon Samba4
  - Using and extending Acive directory
  - Outlook (any version) can launch
  - We display the user's mailbox hierarchy
- If you need to get convinced, we have a « from scratch » **screencast available on the website**

3. MAPIProxy and Server

- **How does it work?**
  - We extend Samba4 AD to add Exchange schema and attribute
  - We have a mapiproxy endpoint
  - This endpoint dispatch trafic to service providers: RFR, NSPI, EMSMDB
  - We have an openchange.ldb index database that indexes all mailboxes
  - **Doesn't have any content but indexes!**

3. MAPIProxy and Server

- **How does it work?**
  - We have started to design a generic storage backend named **mapistore**
  - Provides generic atomic operations
  - Abstraction layer with some MAPI specific features
  - Uses modular system to transparently hook over storage backends
  - Very preliminary sqlite3 backend

3. MAPIProxy and Server

- **What is the next step?**
  - We will soon start to work on supporting folder operations on the server side, create, move, delete, rename etc.
  - Have a “Welcome message” triggered by our storage glue

3. MAPIProxy and Server

- **A word on mapiproxy?**
  - Yes, it is the future
  - Let me explain why ...
- http://mapiproxy.openchange.org

- **It is production ready?**
  - **Only when delegated credentials work**

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Questions?

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