Mohamed **Azzouni**

SENIOR EMBEDDED SOFTWARE ENGINEER · SET TOP BOXES - SECURITY - DRM - STREAMING - OTT - ANDROID

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**Skills**

**Programming :** C, C++, JAVA, PYTHON, PERL, SHELL , Makefiles, HTML, PHP, XML, Javascript

**Versioning:** CVS, SVN, Clear Case, RTC, JENKINS, GIT, MERCURIAL, Bitbucket

**Web & OTT:** node.js ,dash.js , angularJs (2 & 4) , shaka player , Packet Video, GUPNP, Lib Platinum, WSDL, REST, SOAP

**J2ee & DB:** Java Jersey Rest , J2EE , Spring , MongoDb , Hbase

**Others Agile, Android:** NDK/SDK/JNI, STB:Middleware & Drivers, HDCP, MPEGDASH, HLS , VOD, OTT,Playready, UPNP

**Languages:** Arabic, French, English

**Education**

**ENSI( National School of Computer Sciences of Tunis )**

ENGINEERING DEGREE IN COMPUTER SCIENCES  **2004 - 2007**

speciality in open systems and networks

**Experiences**

**SFR-Numericable** Saint-Denis , France

**SOFTWARE DRM/HDCP ENGINEER Feb. 2016 - PRESENT**

* Integration of Netflix nrd 4.3 within new 4K STB
* Concept and develop a library HDCP manager that provides interface to manage hdcp link in 1.X and 2.x protocol versions.
* Concept and develop a library DrmManager that provides interfaces to manager Playready 2.5 and eventually Widevine for SFR new Box used for VOD playing
* Concept and develop a library that will install provisioning Data on STB : On factory for SFR new Box ( data : Nagra, HDCP, DRM and SFR keys )
* Integration of STMicroelectronics PlayReady SDK in SFR Set Top Boxes products
* Developing a library interface of STM PlayReady SDK , to be used by SFR Middleware on Set Top Box .
* **Environment** : STB, STM, Broadcom , Middleware WYPLAY, MW SFR , C, C++, PlayReady 1.2/2.5,TEE, Gentoo, mercurial, Git
* **Références** : Sébastien Keller(SFR), François Delavaud , Anouar Chelbia (SFR), Vishal Sharma (Netflix)

**NETFLIX INTEGRATION** **Aug. 2014 - Jan.2016**

* Integration of Netflix Partner Client Code in Middleware code on Set Top Box Based on 7105 Chip of STM.
* Porting some parts of Netflix client code (audio and video driver and some Direct FB code ) to work on 7105 based Set Top Box
* Realization of automatic Netflix tests and certification
* Monitoring with Netflix partner via weekly conferences calls between team in US and France and daily coordination integration
* **Environment** : STM, MW SFR , C, C++, PlayReady 1.2, DirectFb ,TEE, Gentoo, mercurial, Git
* **References** : François Delavaud , Anouar Chelbia (SFR), Vishal Sharma ( Netflix)

**Bouygues telecom** Vélizy-villacoublay , France

**SOFTWARE INTEGRATION & DEVELOPMENT ENGINEER** **Feb. 2014 - Jun. 2014**

* Development of software module that use a cloud client ( based on PogoPug Fuse solution); So the user could connect , mount and use his pogo cloud files on her STB
* Development and integration of Media Center new features on Middleware.
* **Environment** : STB, Middleware Sagem ,Product Bouygues Sensation Box , C, C++, Linux, UPNP, DLNA, POGOCLOUD Cloud, Fuse File system, PacketVideo
* **Références** : Sandrine Figard (Bouygues telecom), Majed Jabri (Bouygues telecom)

**ARCHITECTE STB FOR PVR SHARING SERVICE** **Jun. 2013 - Jan. 2014**

* Writing of SSA (Software Specification Architecture) of service STB PVR sharing (PVR: Personal Video Recording) : secured solution based on Protocol HLS to play STB recorded movies on LAN and WAN devices ; records will be transcoded , segmented , encrypted and served to clients).
* Writing of STS (Software tests Specifications) of PVR Sharing service on STB part of Service.
* **Environment** : STB, Middleware Sagem, LibPlatinum, C, C++, Linux, UPNP, HTTP, HTTPS,SSL
* **References** : Nicolas Gaude (Bouygues telecom), Jabri Majed(Bouygues telecom)

**SOFTWARE ENGINEER Sep. 2011 - May. 2013**

* Develop Web Services STB Export module that will export multiple STB features (Remote Control, Pairing, PVR, EPG ..) via HTTP Rest and UPNP.
* Develop STB DMR : module proposing DLNA DMR service UPNP and HTTP Rest.
* Develop MediaPlayer : module STB, for mixed playlist media managements
* Develop Receiver Expo STB : module that serves as a asynchronous full duplex communication library between the Middleware andWeb Services Export Binary
* Develop PfsProxy : module on multiple platforms (STB, Android and IOS) of for connection and communication with Bouygues platforms (EPG, PVR, OAuth, Smartvision .. ) with automatic authentication tokens management.
* Develop DMC : module on multiple platforms (STB, Android and IOS) it’s a UPnP control point
* Development of a Native Middleware on Android (NDK / C / C ++ / JNI / JAVA and JAVASCRIPT) composed from DMC, DMS and PFSPROXY : JNI , JAVA and JavaScript Layers for each library ..
* **Environment** : Middleware Sagem, STB, C, C++, Java, JNI, JavaScript, Android, Linux, UPNP,DLNA, SOAP, REST, LibPlatinum...
* **References** : Nicolas Gaude ( Bouygues telecom ), Jabri Majed( Bouygues telecom ), Pascal Souveaux( Bouygues telecom ), Joël Motoumassy ( Bouygues telecom )

**NDS-CISCO** Issy les Moulineaux, France

**CONSULTING ENGINEER March 2010 - Aug. 2011**

* Development and integration of a module within Middleware STB ; it’s a MediaCenter module that allow the sharing and control of medias over networks via Upnp/Dlna Protocol.
* DMS (Digital Media Server) solution is Twonky from PacketVideo company
* Development of a module in C for control and management of the Twonky server via RPC and for sharing FTA PVR and media content from USB drives connected to the STB
* Development and JAVA JNI layer of the module to be exploited later by the UI in JAVA
* **Environment** :Middleware MHP de NDS-CISCO, languages C and JAVA, Shell, Makefiles, UPNP, PV Twonky API, PV Twonky Server.
* **References** : Hassen Taleb (NDS-CISCO) , Eric Delaunay (NDS-CISCO)

**Sagem Défense** Massy-Palaiseau, France

**SOFTWARE ENGINEER DEVELOPMENT Dec. 2009 - Feb. 2010**

* **TMA** : Third Maintenance Application of Network Server System on aircraft Airbus A380
* **Environment** : C, C++, Java, Perl, Python, SGBD MYSQL, Linux ..

**Eurogiciel** Tunis, Tunisia

**SOFTWARE ENGINEER May. 2009 - Nov. 2009**

* Design and implementation of an application that manage a Switch via i2C in the NSS (Network System Server) for the Airbus A380
* The PSM, interfaces with LDAP, VPN, an I2C interface to control the Switch and a Flight switches.
* Test are automatized in virtual environment using Perl scripting and shared memory C programs .
* **Environment** : C, tested and integrated under Linux FreeBsd 5.3. , perl ..

**STMicroelectronics** Tunis, Tunisia

**SET TOP BOX LOW LAYER DEVELOPMENT ENGINEER Out. 2007 – Apr. 2009**

* Engineer in STAPI (ST-API) team : responsible for development, maintenance and support for VOUT (Video Output Stage) and HDMI (High Definition Multimedia Interface) drivers for STM socks.
* Bug fixing and support for various clients.
* Porting of drivers code on new chips and update documentation of drivers for new socks
* **Environment** : C, OS21, STLinux, Clear Case, socks: ST7100, ST7109, ST7200 et ST7105.