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Introduce

After 10+ years of R & D experience in IT field , I have gotten an insight on the development and research. I has taken part in developing equipments of various forms, including network equipments, terminal equipments and test equipments, which give me the opportunity to build a more complete body of knowledge in communication industry, to learn and take the best pratices of organization, development, testing and integration methods of R & D area.

No matter What kind of work I engaged in, I would like to keep a humility and practical style. I will try my best to be best, even though I may not good enough to be.

Skill

Domain : Wireless (2G,3G,WIFI) Switch&Route Software Develop Solution Design

Programing : C C++ Python Bash Sed javascript perl java emacs-lisp

OS : Linux/ucLinux; Debian/CentOS Vxwork Nucleus ucCos-II

Develop Tool : Telelogic Tau Rhapsody ADS Gcc Emacs

Testing Tool : Tcpdump Wireshark Omnipeek Chariot iPerf

Database : MySQL SQLite3 Redis Berkeley DB

Philosophy

As product manager of several projects, I realize that user-oriented development is always the most important principle. Keep in touch with the market and users in the all stages of developing, otherwise you may produce something never be used.

Present Status

Most time I works in Linux， and use Windows(in virtualbox) only when I need to use QQ. My current "research"(ResearchGate)focus on NLP (Natural language process). The most frequently used programming language is Python，and I am devoting to the open source community.

Eduction

CS Master(2.5 years) in Haerbin Engineering University.
Outstanding during the colledge learning, the honors include "the roll student", " outstanding student in foreign language learning", "outstanding graduate", and "recommended to postgraduate (without entrance exam)".

Shanghai GBCOM July, 2007 - January， 2011

A equipment supplier of WIFI technology-based public network and private network.

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>>> R & D job：Team Leader of "Routing Team"
Tasks of "Routing Team" includes:
Wireless routing protocols, link layer protocol, IP protocol suite, application-related protocols, service QoS related. These modules implement the basic functionality of network switches and routers . Meanwhile, in order to adapt to needs of industrial users, such as ports, rail transportation and power industry, the team will design and develop custom network structure and communication protocols.
These modules include:
+ L2 : VLAN(include QinQ)， Bridge(Switch)，Port-Binding, STP/RSTP/MSTP, IGMP Snoop
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+ Network Service: PPPoE, NTP/SNTP, DHCP, IDS/IDP, Radius
+ L3： NAT(DNAT, PAT, TransNAT); Routing Protocol(OSPF, RIP)
+ Traffic Control:
    - Portal(comformance with CMCC specification)
    - Speed Control (UL/DL, per user, per device, per SSID)
    - Filter(IP, Port, Protocol, Content)
+ Data Tunnel: DTLS, IPsec
+ AP Control: CAPWAP

Most modules include kernel part and user part, the former is responsible for functional processing, the latter is responsible for configuration and information collection interface.
The modules I developed include:

● Wireless roting module

- For mesh network, implement a MANET(Mobile Ad-hoc Networks) protocol, which is suitable for the scenes not very sensitive to delay
- For fast moving scenes, design to decrease the delay and bandwidth loss during handover between different AP.

● DHCP module

DHCP module includes three sub-modules: Server, Client and Relay. Both DHCP Server and Relay are VLAN aware，in other words, can have distinct configuration for each VLAN. The DHCP Server support static address binding, online failover backup, IPv4 or IPv6 adress pool， and configurable Options，such as WLAN related Option 43, 82, 60.

● IGMP Snoop module

To avoid sending unnecessary multicast to switch ports，a IGMP snoop should exist to snoop the status the client of each IGMP group, and only the port existing active user need to forward the multicast. Support IGMP v2.

● MSTP module

A implement of IEEE 802.1s, mapping each VLAN to a certain Instance, each of which maintain its own status of Spanning Tree. This module interacts with Bridge module to set the forwarding status of VLANs on the port.

● TCP Performance Enhancement module

The TCP protocol is invented in situation of wired network, and its main error-resist mechanism is designed for network congestion. Usually detection of packet loss will trigger the procedure of "Congest Control" with a "Slow-Start", which then will dramatically decrease the rate of date flow. This module monitor the establishment of each TCP connetction, remove the "loss" information, and resend loss packets from its inner buffer. It has several resend policies(such as "fastest", "smooth").The tests show it is very effective to smooth the data flow in high loss rate environment . It can work in L2 or L3. The main achievement has applied for patent(No. 200810207789.2)

● IDS module

Support detecting of malformed packet, flood attack, and port scan. The detection types are compliant with Cisco Secure IDS Attack Signatures” (not include the attack above transport layer).
All the port scan performed by Nmap can be detected.

● Ported modules

Porting some modules developed by 3rd party, and writing configuration wrappers. The modules include: NTP Server/Client; PPPoE Server(support Radius)/Client

>>> Project job：Metro product manager

● Solution for metro line

- Study the requirements of wireless communication in metro scene. Subdivide the usecases into "high bandwith application" (CCTV and PIS) and "high reliable application" (CBTC). Give each category its basic solution including the issues most concerned, such as reliability, anti-interference, cost-effeciency.
- Report to the company's chief management and technology board, accept their review.
- Cooperate with partner company, help to write bid document, especially the technology part.

● Manage developing process of Metro product

Integrated all available information, list detailed functional requirements of hardware and software, set develop WBS(work breakdown structure) of top 2 levels.
Apply to the company the resources to join the project, track the development process, and keep abreast of the problems occurred. Several trackside base stations and on-board terminals in RailsRadio ™ series have been successfully developed.

● Metro product promotion

Research the industry status quo, the competitive landscape, prepare presentation documents, introduce the characteristics of our solution and products to the potential partners.
Positively reply to the partners questions in technical and commercial issues.

● Implementation of the metro projects

+ Shenzhen Metro Line 3.
+ Shanghai Metro Line 1 test project.
+ SBA CBTC selection test.
+ SBA Park, experimental project (30Mbps demonstration).
+ Shanghai Metro Line 8 CCTV test project.

>>> company's business presentation platform. All application data can be transferred to the company's demonstration room.

- DC Road: 3 km, 3 nodes. Demonstrates the general video services, 8Mbps
- ZY road: 1 km, 3 nodes. Demonstrattes high-bandwidth services, the maximum of 30Mbps
- Around Park: 11-node ring distribution. Demonstrates applications of wireless city, 8Mbps

Nanjing Airlync July, 2006 - July, 2007

A 10-15 developer's startups company.

R & D job：Software Chief Engineer
Project job: Product Manager

- Airlync field test software

Responsible for leading the development of Airlync field test software which runs on Windows. The design goal is to support GSM/GPRS/WCDMA/CDMA2000 wireless systems, and connect to Qualcomm and Huawei test mobile phones. I am responsible for the development of the Middle Ware(wireless signaling decoding and signal status tracking), and project management. In the project, we adhere to some good practices, such as: distributed compilation, peer review, bugzilla, daily meetings.
The final software is almost identical to the TEMS ™ (by Ericsson) in function, however the speed is relatively slower.

Shanghai COSMOBIC Sep, 2003 - June, 2006

A joint venture company established by NEC, Panasonic(MCI) and Huawei. Its core businesse is license the technology(architecture and software) to handset manufacturers.

R & D job：Senior Engineer，Chief Engineer

- Follow 3GPP protocol change

According to modification in Protocol Conformance Specification(usually TS34.123 and TS34.108), modify or create test scripts running on the Anritsu signaling tester (MD8480A/B/C). This is periodic task for every 3 months.

- Write scripts of inter-RAT cases

Since Japan has no GSM network, so all the inter-RAT select / re-select / handvoer testcases are assigned to us. This task make us familiar with radio channel structure, frame structure, and signaling processes of GSM / GPRS / EDGE system.

- Write scripts HSDPA and HSUPA cases

We write all the HSDPA and HSUPA related scripts and use Qualcomm's mobile phone and Anritsu signaling tester to verify the correctness of the scripts. This task make us familiar with HSDPA and HSUPA.

- RLC protocol test platform

As the primary designer, I implemented `mITRON4.0` interface (common in Japan) on Windows system. The platform provides a friendly interface to the test script writers, who can set the content of PDU sent to the RLC module, and check the the PDU sent by the RLC.

- ROHC header compression software development

The module according to the configuration profile, such as UDP, UDP-Lite, the IP-Only, included in which header to be compressed header. In this project, I mainly make a overview analysis of the compressible parts of each profile.

- Training in Japan

Have OJT (On Job Traning) in Panasonic YRP R & D center for a period of one year. During the training, I have a in-depth understanding of hardware and software architecture of Japanese 3G mobile phone. e.g:
+ SDL-based RRC software design and code generation.
+ TTCN-based RRC software test.
+ A custom SDL OS Integration method, bounding multiple SDL Process into one OS task.

Self-Learning(HangZhou) Nov, 2002 - Aug, 2003

Self learning C# and .NET framework, study code of Rotor released by Microsoft.

ZTE corp Apr, 2001 - Oct, 2002

Mobile Branch(Shanghai No.2 Institute)

Software development department Jan, 2002 - Oct, 2002

R & D job：Develop Engineer

- Develop 3G-WCDMA RNC commercial system Responsible for design and implement the protocol stack of RNL User Plane, and so be familiar with the architecture of 3G, especially in field of RNC. Independently accomplish the design, coding and test of RLC module. Then take in charge of PDCP and BMC modules developed by others. Also I am known well the protocols of IUUP, FP, MAC, etc. With the characteristic of high performance, robustness and powerful capability of error rectifying, the RLC module has implemented all the functions

listed in the protocol, which takes a key effect on the reliability of radio link for 3G data service with high speed (By now, it has passed the verification in vertiginous wireless environment).

- Debug 3G-WCDMA RNC commercial system

Lead the task of data test for services of 3G, which concludes the items as system average/peak overload, times of meeting deadline, data loss ratio, quality of service, and so on. We collect the information of each service in different cases as “no macro”, “macro over multi NodeB”, “macro over multi RNC”, then create one analysis report for each case.

- Practice in CMM activities

Be accompanying with the activities organized by the corporation, I study by myself much knowledge of the architecture, methods and application of CMM. Now I have the practice experience of KPAs in CMM level 2 and the PR in level 3.

Examination of the first half year of 2002: S(uper), 1st in the department.

Wireless development department 2 Apr, 2001 - Dec, 2001

R & D job：Develop Engineer

- Debug 3G-WCDMA pre-commercial system Debug 3G-WCDMA pre-commercial system Investigate, detect and resolve several technical problems, which make quality of the data service in PS domain (144k/384k) boost up swiftly, and then were praised by the debug team. Followed that, we actualized several application service of 3G such as Web Browser, Real Play, NetMeeting, Ftp, etc, all of which have passed the test of many views and checks. In 2001, the number of days on my evection is more than 120.

- Join in the C3G trial bureau

As a technical interface representative of RNC, I joined in the project of C3G trial bureau built cooperatively with a famous company of mobile service provider. And my responsibility is to resolve problem in time, reflect information to the citadel, interacted and associated with representatives of other equipments

Examination of the Second half year of 2001: S(uper)

Being graduate student Sep, 1998 - Mar, 2001

Development and research conducted in the college.

- One research project of National Defense-Autonomous underwater vehicle

Develop Independently the framework of high layer task control, which used with modeling and coding method based on UML Statecharts, with that it is effective to verify consistency and integrity of the system. I also developed subsystem communication interface using socket, real time scene render using OpenGL, and command GUI using CJ60 Lib. After the simulation, test in pool, test in sea , the project succeed to check and accept.

- Charge manage system of Haerbin environment protect bureau

Develop with another guy, with PowerBuilder and SQL Server. The system has the functions such as input, query, account, and print, etc. It is proved to be effective utility for the work, and for that reason gains much positive reflection.

Patents

Patent No.	Patent Name
200510110270.9	A method of dynamic adjustment to the PRACH resource allocation
200710046189.8	A route propagating method
200710046190.0	A method to dynamicly broadcast route
200710170715.1	A fast handover method for wireless mesh network
200810038888.2	Sense and handover method in same frequency coverage
200810038889.7	Reliable multicast system and its control method for wireless network
200810207789.2	An optimized TCP transmission of wireless video
200810207792.4	A method to handover mobile subnet in layer 2
200810207791.X	A multipath enabled routing method for wireless mesh networks
200810207790.5	A Qos guaranteed mesh routing method
200810207787.3	Using terminal relay to coverage WLAN network blind spot

Certification and Training

Name	Organization	Time
Microsoft Certified Professional (MCP ID#1694436)	Microsoft	1999
Introduction to TTCN	Telelogic China	2003
Communication Skills	Learning Alliance Management Consulting Co., Ltd.	2005
Advanced Presentation Skills	Silverstone Process & Performance Consulting	2005
Oral English Program Level 3	Longre Training Center	2005
Introduction to SDL	Telelogic China	2005
Practice of Project Management	Shanghai Changeway	2008
The science and art of effective authorization	Influence education and training	2009

Contributions to Community

RedisBrain Wuthering abcNLP ConceptBro TwistedChunkClient