LESLIE (QI) WANG

TECHNICAL LEADER
IP VIDEO SYSTEM
CISCO SYSTEMS

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PERSONAL SUMMARY

Over 10 years of experience in software industry and with job functions covering systems architect, design, analysis, development and integration as well as marketing development, project / program / people management; familiar with various OS & embedded OS platforms, network protocols, development tools, development methodologies, and programming languages; excellent experience in technical documents authoring; rich system architect and team leading experience; very strong analytical and problem solving skills; excellent team player; well articulated in technology terms; very good communication capabilities; strong delivery and execution emphasis

Specialties in

- Video Processing: Video encoding / decoding, Video analysis
- Video Streaming: Mobile streaming, HTTP ABR streaming, RTSP, RTP, RTMP
- Messaging Middleware: JBoss ESB, RabbitMQ, HornetQ, ActiveMQ, XMPP, MQTT
- Cloud Computing: OpenStack, AWS, VMWare
- SDN: Openflow, NFV
- DB: MySQL, Couchbase, Mongo, Cassandra
- Big Data: Cisco big data solution - Truviso, Hadoop, Splunk

Current status

- F1 visa & studying Master degree Major at Software Engineering at International Technological University, San Jose CA
- Looking for company sponsoring H1B visa application

PROFESSIONAL EXPERIENCE

CISCO SYSTEM, CHINA R&D LTD. **05/2005 – PRESENT**

Cisco System China R&D LTD, established as a key center of engineering excellence with development, testing, and program management competencies, is dedicated to providing top quality and highly sophisticated technology products/solutions to support China, APAC, and around the world.

Technical Architect, at IP Video System

Responsibility:

- Chief architect of several product lines. Architecting and leading development on key features.
- Write detail system architecture specification, system function specification, design specification
- Lead system solution design and implementation for APAC / Great China customer by working with cross function team
- Lead or participate in defining various standards of Chinese cable industry, such as NGB (Next Generation Broadcast), CDN Federation.
- Drive innovation within and across organization. Work as a leader at Cisco China R&D Thinkubation community to form interest groups, initiate projects, guide design & implementation.
  - Elastic parallel video encoding system
  - Consumer shopping behavior analysis based on video analysis
  - Traffic optimization based on Openflow
  - Openstack Dual Stack support: IPv6 / IPv4
- Work as member of Cisco China R&D Patent Review Board to review submitted patents, guide engineering writing patents.

Product: Video Distribution Suite – Internet Streaming / TV Streaming

The products provide video caching and streaming service by different streaming protocols (HTTP/RTSP/RTMP) for multiple types of devices over service provider network or over the top internet. Architecting and leading development on key differentiated features:

- Lab virtualization
  - Use Openstack TripleO/Ironic/Nova/Neutron/Ceilometer/Heat/Swift/Glance/Keystone/Cinder to manage lab equipment in an automatic way.
- Elastic virtual CDN to auto scale up/down caching / streaming node based on different rules.
  - Openstack Heat as orchestration engine, Openstack Ceilometer as collecting & monitoring engine.
- Just-In-Time packaging for diverse ABR format video (DASH/HLS/HSS/HDS)
- HTTP streaming live channel fast change to improve user experience.
- ABR multicast live distribution for network optimization
- ABR session tracking for video data analysis
- Hybrid HTTP transport: HTTP over TCP/UDP/Multicast. SPDY / QUIC investigation. TCP Congestion Control optimization for Video.
- HTTP streaming QoS fairness
- Universal CDN optimization for web content acceleration.
- Real time scheduler subsystem for Cloud DVR / Timeshift TV use case.
- Target Advertisement Solution integration with BlackArrow / Freewheel with SCTE 130
- Integration with various ecosystem partners by ISA or Comcast NGOD specification or other proprietary interfaces.

Product: Conductor

The product provides Platform As A Service like function to provide a unified service oriented platform to deploy, provision, configuration, manage various video services. It also provides a unified communication message bus to connect users, devices, services and applications together in a real time way. Architect on various Videoscape applications and infrastructures:

- Overall system design in a way of service oriented architecture, including system level design, componentization, SQL/NoSQL DB selection, interface design, system management (provision, configuration, deployment, monitoring, statistics & report, UI management)
- XMPP based messaging infrastructure to provide a distributed, secure, high performance messaging fabric for user-user, user-service, service-service, service-user communication.
- Service infrastructure to provide service registry, service discovery, service virtualization, service routing, service connection functions.
- User management sub-system for user, device and home identity data model.
- Unified push notification service to different types of devices (STB, xBox, iOS, Android) by integrating with APNS (Apple Push Notification Service) and GCM (Google Cloud Messaging)
- Device management subsystem which is to centrally manage end points via XMPP protocols including remote configuration, image upgrade/downgrade, diagnostic.
- Operator message service which is to allow SP operators to send message to end points, such as alert, advertisement, etc.
- Companion Device application which is to allow STB to interact with smart devices, and shift TV contents at anytime from anywhere.
- Social TV application which is to allow users to share TV contents to their friends at anytime from anywhere to any devices.
  - Multiple client applications: Flash @ Desktop / STB, IOS / Android @ smart device.
- SSO solution to allow users to single sign on among XMPP and HTTP sessions.
- Analytics service by integrating with Truvison real time engine for multiple use cases.

Software Development Engineer, at MSCBU

Product: PGW 2200 Soft Switch Signaling Gateway

The provides call control and SIP session control function and support multiple voice signaling and control protocols, such as SS7, ISDN, SIP, MGCP, Megaco, etc.

- Served as project owner and individual contributor for developing new features
- Wrote detailed project proposals, overall project plans, system function specification and design specification for various new feature development, and integration projects.
- Leaded RADIUS accounting features design, development.
- Leaded SIP over TCP and SCTP features design, development.
- Ported components of product PGW from 32 bit to 64 bit on Solaris.
- Developed and drove project schedules.
- Improved software quality ensuring process.
- Analyzed software requirements with customer and team members
- Helped the team solving technical problems

STMICROELECTRONICS, SHANGHAI, PRC **08/2003 – 04/2005**

STMicroelectronics was one of the world's largest semiconductor companies. The company is the world leader in semiconductor industry's five major high-growth sectors including Communications (35% market share), Consumer (17% market share), Computer (16% market share), Automotive (16% market share) and Industrial (16% market share)

Software Development Engineer, at DTV R&D Lab

Product: Digital TV Middleware MHP / OCAP Stack

- Served as software engineer
- Designed and developed digital TV middle ware solutions using Java
- Implemented MHP (Multimedia Home Platform) & OCAP (OpenCable Application Platform) API specification on top of STMicroelectronics' RTOS (ST20, ST40) and driver stack.
- Responsible for application downloading and application lifecycle management module, JavaTV APIs, HAVI UI APIs module development.
- Project document authorization

US PATENT

2 published US patents, and 2 pending US patents.

US20130013688: System and method for providing a message and an event based video services control plane
US20130013704: System and method for providing a message and an event based video services control plane

EDUCATION

International Technology University, San Jose CA, US **01/2014 – PRESENT**
Master in Software Engineering

Northwestern Polytechnical University (NPU), Xi'an PRC **09/2000 – 07/2003**
Ph.D in Pattern Recognition and Intelligent System

Northwestern Polytechnical University (NPU), Xi'an PRC **09/1998 – 07/2000**
Master in Pattern Recognition and Intelligent System

Northwestern Polytechnical University (NPU), Xi'an PRC **09/1994 – 07/1998**
Bachelor in Electrical Engineering

PUBLICATIONS

1. **Wangqi**，Guolei. 'A fast and effective algorithm for adaptive arithmetic coding'. TV Technology，Vol.12 2002, pp:10~13.
2. **Wangqi**，Guolei. 'Application of an adaptive frame/field DCT transform in MPEG-2 video encoder'. TV Technology，Vol.3 2002, pp:11~13.

3. **Wangqi**，Guolei. 'Application of dual prime prediction in MPEG-2 video encoder'. TV Technology，Vol.12 2001, pp:17~20.
4. **Wangqi**，Guolei. 'A MPEG-2 Compliant Efficient Algorithm for Motion Prediction'. Journal of Northwestern Polytechnical University. Vol.3 2002, pp: 422~426
5. **Wangqi**，Guolei.' SPIHT for Arbitrarily Shape Object'. TV Technology. published
6. **Wangqi**，Guolei."Visual Texture Coding in MPEG-4". Journal of China Image and Graphic. published
7. **Wangqi**，Guolei."ROI Encoding in JPEG2000". Computer Engineer, published
8. **Wangqi**，Guolei."An Embedded Image Encoding Based on Wavelet Transform". Computer Engineer, published
9. **Wangqi**，Guolei."A RTSP Compliant Proxy Server". Journal of Computer

TECHNICAL SKILLS

Languages	Java, C/C++, HTML, Python, PHP, Action Script, shell script, JavaScript, Object C++
Video streaming	HTTP ABR, CDN, NAT/STUN
Video processing	Video compression (MPEG-2, AVC), ffmpeg, gstreamer, directshow
Protocol	REST, SOAP, XMPP, AMQP, MQTT, RTSP, RTP/RTCP, RSVP, ISA, NGOD, ATIS
Technologies	IaaS, SDN, Hadoop, ESB, MOM, BPM, SOA
Database	MySQL, Couchbase, Mongo, Cassandra
Programming OS	Window, Linux, iOS
VoIP	SS7, SIP, Sigtran, MGCP, Megaco, Radius

Standards

IETF:

- Application: HTTP (SPDY), RTSP, RTP, RTCP, RSVP, CDN Federation, XMPP, OAuth, SIP, MGCP, Sigtran, Radius, Diameter, SNMP, TLS, SSL
- Networking: BGP, OSPF, MPLS, IPSec, PGP, IGMP, AMT, NAT, STUN, STAN, etc

ITU, ISO/IEC: MPEG-1,2,4,7. MPEG-DASH, H.264, SS7, H.323, H.248
OMG: UML, CORBA, IDL, XML, BPMN
OASIS: TOSCA (Topology and Orchestration), SAML, AMQP, CAP, UDDI, WP-BPEL
W3C: HTML, CSS, DOM, WSDL, XML, XPATH, XSLT
ETSI: NFV, Content Delivery, NGN
SCTE: Ad-Insertion (SCTE-130, 30, 35)
Cablelab: ADI, ATS, Metadata, Docsis, Opencable (OCAP, Tru2way)
DVB: MHP, DVB-SI, DVB-EIT