

## **CHAN CHI HUNG**

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I have over 10 years of experience in using open source software to develop solutions to automate system administrative activities, system & network performance monitoring, and analysis of performance data. It helps my employers to save thousands of dollars in buying commercial software. In some cases, certain functionalities are not available in the off-the-shelf products.

My experience in scripting languages together with my in-depth understanding of Internet technologies & open standards allow me to tackle real life problems efficiently and effectively.

I am seeking opportunity that my skill set and knowledge can be contributed positively in an organization.

## **WORK EXPERIENCE**

**Mar 2011 –** Integration Specialist (Professional Services), Adaptive Computing Enterprises Ltd, Singapore

- Integrate 3<sup>rd</sup> party resource managers with Moab Workload Manager for intelligent scheduling in a High Performance Computing and Cloud Computing environments
- Provide support to partners and customers in Asia

**Feb 2006 –** Principal Software Engineer, BT Frontline Ptd Ltd, Singapore (*IT systems integrator*) (*Frontline Technologies Pte Ltd was acquired by British Telecom plc in Mar 2008*)

**Mar 2011**

(Sun-Badged: Senior HPC & Grid Specialist, Asia Pacific & Technology Centre, Sun Microsystems Pte Ltd, Singapore)

- UNIX team lead in an outsourcing project
- Develop automated solutions on the grid computing infrastructure
- Performance design, monitor, analyse and tune grid computing solutions
- Implement grid solution for customers
- Manage a 32x 2-CPU Linux cluster with 2x 3TB SAN, 4x 16-CPU Solaris cluster with 24TB NAS.

### **Current Works:**

- UNIX team lead in a 2-year on-site outsourcing contract for a financial institution  
Lead a team of consultants to provide infrastructure support for mid-range to high-end Sun servers. Scopes of works include performance management, capacity management, central system logging, automation and enhancement on existing system processes.

Develop solution to automate daily activities, which include writing scripts to summarise large amount of dataset and present them in graphical form for correlation.

Develop Nagios monitoring scripts to monitor the CPU / Memory / Network / Disk / LDAP / Hardware of UNIX servers.

Design and develop Tape Backup monitoring system for 10+TB data. Design and develop HBA IO monitoring system for 2500+ ports in 14 Brocade switches.

Tune existing customer's scripts and processes to ensure maximum efficiency. An improvement of 10-fold is not uncommon.

*Platform:* Sun Solaris 8 and 10

*Programming Language:* Perl, Python, Tcl, UNIX shell script

#### Previous Works:

- Pre-Sales demonstration in grid computing for a major bank in Hong Kong.  
Assisted Sun Microsystems (Hong Kong) to integrate customer's Java program to be deployed in a grid-computing environment. Initial benchmark results from Sun were in hours and I was able to reduce the runtime to less than 2 minutes. With the enhanced performance, Sun Microsystems (Hong Kong) was able to propose smaller form-factor servers and therefore reduced the proposed pricing.
- Grid computing for animation industry
  - Designed and developed solutions to integrate commercial animation rendering tools (e.g., Maya, Mental Ray) to be deployed in a 32-node 64CPU Redhat Enterprise Linux cluster with Sun Grid Engine.
  - Configured and enhanced open source monitoring software (eg. Ganglia) to monitor CPU, network, memory utilisations of all the servers in a grid environment.
  - Designed grid portal to monitor the rendering activity.
  - Developed efficient tuning solutions to ensure all systems, storage and network resources are fully maximised.

*Platform:* Sun Solaris 10, RedHat Enterprise Linux 3  
*Programming Language:* Perl, Tcl, UNIX shell script, JavaScript
- Utility computing for CAE
  - Provided utility computing for the Electronic Design Automation (Mental Graphics' Calibre) and mechanical Computer Aided Engineering (Nastran, Star-CD, Lyna3D) software usage. Customers include Chartered Semiconductor, Mental Graphics, and Proton (Malaysia)

*Platform:* Sun Solaris 10  
*Programming Language:* UNIX shell script
- Grid Discovery Zone (GDZ)
  - Virtualised a SunFire X4600 (16-core, 64GB Memory) AMD Opteron servers into Solaris 10 containers to allow every GDZ users to have a self-contained Solaris environment tightly integrated with a Sun Grid Engine and Sun HPC Cluster Tool infrastructure. The whole process of setting up GDZ user environment has been fully automated.

*Platform:* Sun Solaris 10  
*Programming Language:* C, Tcl, UNIX shell script
- Grid Solution for Universities in Malaysia and India

- Designed and developed grid environment using Sun Grid Engine based on the latest Solaris 10 technologies such as container/zone, ZFS, and resource management.

*Platform:* Sun Solaris 10

*Programming Language:* UNIX shell script

**Nov 2000 – Jan 2006** – Consultant/Systems Manager, Managed Computing Competency Centre, Nanyang Technological University, Singapore (*industry funded centre in the university*)

- ITIL Foundation certified
- SunTone auditor
- Load testing
- Performance management
- Developed in-house CMDB (Configuration Management Database)

Major Works:

- Software and Hardware Support
 

Managed a team of 5 engineers (database, network, systems and software) to provide incubation environment for Internet startups. The infrastructure consisted of 20+ Sun servers ranging from 1- to 4-CPU's. Customers include Asia Broadcast & Media, BillEx Software, CU3D, ecPresence, Nexerve Asia, PSA, SHM, TTS-Asia.com.

*Platform:* Sun Solaris 10
- Utility Computing
 

Setup proof-of-concept prototype environment to assist local 3D animation industry to tap onto our computing infrastructure to speed up the rendering process. My role in this project is to integrate commercial rendering software with the Sun Grid Engine scheduler to deliver an optimised computing infrastructure with the maximum throughput.

*Platform:* Sun Solaris 10, RedHat Enterprise Linux 3

*Programming Language:* Perl, Tcl, UNIX shell script, JavaScript
- National Day Parade 2003 e-Balloting System
 

My role in this project was to carry out server host hardening, load testing, and performance monitoring/tuning/analysis. During the 2-week balloting period, I had to provide 24x7 supports to ensure the service availability.

*Platform:* Sun Solaris 8

*Programming Language:* Perl, UNIX shell script
- Sun Reference Architecture
 

Our Centre is appointed by Sun Microsystems to assist the local ISVs (Ecquaria, eInvestore, i1, NCS, Savi) to prepare a set of technical documents (Design Guide, Implementation Guide and Scalability Guide) in order to accelerate the sales cycle. I was the team lead to profile application scalability. Commercial load testing tools were used to carry out load tests. Various hardware, software and operating system configurations were tested to determine how the 3-tier web application can be scaled both horizontally and vertically under different type of work loads. OS and application tuning were applied for optimal performance.
- Web Performance Management
 

I was the team lead in web performance management projects. Typical project scope includes certifying company's 3-tier web application that can sustain the required load requested by their customer. Other projects include assisting companies to size their future

infrastructure for a projected load. Load test is required to verify such proposed infrastructure can take the required load after the upgrade. Customers include eInvestore, i1.com, novaCITYNETS

*Platform:* Sun Solaris, RedHat Enterprise Linux, Windows

*Programming Language:* UNIX shell script

- Service Level Management

The Centre were appointed by Sun Microsystems to be the sole SunTone (service quality certification programme for IT network services) auditor in Asia South and I was one of the SunTone Auditors. I audited Internet Data Centre in Singapore (Equinix, NCS, Failsafe, CSC) and was one of the trainers for Sun Microsystem's 5-day "ITIL & SunTone Service Level Management" course.

**Mar 1996 –** Research Fellow, Gintic Institute of Manufacturing Technology, Singapore  
**Oct 2000** (*research institute for manufacturing technology*)

- Computer Aided Design (CAD) exchange standards
- Internet application development
- Software project management

Major Works:

- CAD Data Exchange Service and Web Development

This was an IDA funded project to assist the local manufacturing SMEs to resolve their CAD exchange issues. This service was one of the first applications for the manufacturing industry under the Singapore ONE programme. I designed and implemented a collaborative web environment to facilitate SME, SME's customers and Gintic to exchange CAD models. As for the back-end processes, I developed systematic methodologies to repair CAD models and allowed such models to be effectively translated to customer's target system. 50+ local precision engineering companies signed up for this service. Various scripts and programs were also developed to streamline the workflow.

*Platform:* Sun Solaris, HP-UX, IBM AIX, SGI IRIX, Digital UNIX, RedHat Linux 9, Windows NT

*Programming Language:* Perl, Tcl, UNIX shell script

- Web Development

I worked with our manufacturing simulation group to develop a web front end to their simulation result for Apple computer Singapore's manufacturing plant.

*Platform:* Windows NT, MacOS X

*Programming Language:* Tcl

- Software Project Management

Software development was outsourced to Beijing Aeronautical Manufacturing Technology Research Institute (BAMTRI) and Huazhong University of Science & Technology (HUST). My role included drafting the design specification, collection of industry's test cases, and tuning of software algorithm. Project coordination was done via emails and quarterly visits to China over a period of 2 years.

- Y2K Data Migration

I assisted a local manufacturing company to migrate their entire legacy CAD data (20,000+ CAD files) to industry de-facto standard. This project was started 2 months before year 2000 and all data was successfully migrated to another platform before year 2000. Scripts

were developed to allow such a conversion to be carried automatically.

*Platform:* SunOS 4, Windows NT

*Programming Language:* UNIX shell script

**Sep 1993 –** Research Engineer, Siemens Pte Ltd, Singapore (*IT Division in Siemens*)

**Feb 1996**

Major Works:

- NSTB Funded Project

I was recruited to work on this 3 year S\$3 million R&D project to apply the latest CAD exchange technology to streamline the workflow in the construction industry. The project consisted of 4 partners (Government, Statutory Board, Research Institute and Commercial) with a total of 15 people. Our role in Siemens was to design, develop and implement a pilot environment to showcase how the latest CAD technology can help the industry. My role was to develop various CAD translators to translate to a common model to facilitate communication.

*Platform:* Sun Solaris, HP-UX, SGI-IRIX, Windows NT

*Programming Language:* C, Tcl, UNIX shell script

**Apr 1992 –** Application Support Engineer, Intergraph Systems (S.E.A.) Pte Ltd, Singapore

**Aug 1993** (*a turnkey CAD/CAE/CAM software vendor*)

Major Works:

- Support and Training

My role included support of Intergraph suite of Mechanical CAD/CAE/CAM software, pre-sales application benchmarking and post-sales training.

- CAD Translator Development

I developed bi-directional translator between Intergraph FEM software and SDRC I-DEAS FEM software. The translator was able to translate both model data and analysis result without any loss of information. This work was part of the requirements in a contract with Defense Science & Technology, MINDEF.

A proof of concept translator was developed to show that Intergraph's Architectural application was able to export its building information to some Government predefined format. The export format data was used as the input to an automatic building plan checking system.

*Platform:* Intergraph UNIX

*Programming Language:* C, UNIX shell script

**Jan 1989 –** Engineering Analyst, Ove Arup Partnership, UK (*Civil & Structural Consultancy*)

**Nov 1991** (*firm*)

Major Works:

- Software Migration

I have successfully ported a number of in-house FORTRAN software from DEC-10 to Sun workstation running SunOS. This migration included converting non-standard FORTRAN to standard FORTRAN-77. Rigorous tests were performed to ensure all migrated codes maintained the same accuracy.

*Platform:* SunOS 4, DEC 10

*Programming Language:* C, Fortran, UNIX shell script

- Software Integration

Bi-directional translator was developed to integrate the data and result between two in-house engineering applications. The software was designed and developed to ensure backward compatibility between the various versions of the two applications.

*Platform:* SunOS 4, Windows

*Programming Language:* C, Fortran

## **EDUCATION / PROFESSIONAL QUALIFICATIONS**

MSc in Computing Science, Birkbeck College, University of London, UK, 1991

MSc in Computer Aided Design, University of Aston in Birmingham, UK, 1988

BSc (1<sup>st</sup> Class Hons) in Mechanical Engineering, Polytechnic of Central London, UK, 1986

Certified ITIL Foundation

Chartered IT Practitioner, UK

Member of the British Computer Society, UK

## **SKILLS**

Language

Written: English and Chinese

Spoken: English, Mandarin and Cantonese

Computer-related

Programming:

C, FORTRAN, Perl, Python, Tcl/Tk, UNIX shell script

Web-related Standard:

CSS, DOM, HTML, HTTP, POP3, RSS, SNMP, SMTP, SOAP, XML, XPath, XSLT

Database (integration with Tcl)

MySQL, Oracle, SQLite

Operating System:

Digital UNIX, HP-UX, SGI IRIX, Sun Solaris, RedHat Enterprise

Linux, Windows

## **REFERENCES**

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