Ian Loe

• ian@ianloe.net •

Career Highlights

- Chief Technology Officer (CTO) for a conglomerate managing 9 enterprises.
- Active Adjunct Senior Fellow at the Singapore University of Technology and Design teaching advanced topic on Cybersecurity and Quantum Computing.
- Authored security reference architecture for microservices and serverless design.
- Introduced formal architecture practices and processes to a Fortune 500 company.
- Introduced and laid groundwork for implementation of Service Oriented Architecture on both distributed systems and mainframe platforms.
- Developed Intellectual Capital on SOA Governance for IBM to be used by worldwide practitioners. (USPTO #8244548)
- Certified as a ISO 27001 Lead Auditor, first Certified Trainer for Cloud Security Knowledge (CCSK) in South and South East Asia.
- Worked on large scale e-Commerce platform for multiple international market with complex rules computation.
- Implemented end-to-end DevOps framework and processes for continuous integration delivery of applications
- Worked on large ERP implementations on a hybrid cloud deployment.
- Introduced and implemented design discipline and skills such as "Architectural Thinking" to corporate software development practices.
- Fist Asian (race & geography) to create content and teach an online class on Cybrary.
- Developed and ran the middleware operations team for the region (including creating run books and administrating the various environments).

Work Experience

NE Digital (part of NTUC Enterprise Co-operative Limited) Chief Technology Officer October 2020 – Present	As the chief technology officer for NE Digital (the digital transformation organisation within NTUC Enterprise), I am responsible for the technology architecture and governance across the social enterprises ranging from retail and loyalty programmes to healthcare and education. Achievements: • Implement FinOps as a practice to save 30+% of cloud computing cost for 2 consecutive years. • Developed a secure private cloud for hosting and bridging legacy application to the public cloud to create a true hybrid cloud architecture. • Developed next generation WFH network architecture to extend "secure location" from the office to selected home offices.
NTUC Enterprise Co-operative Limited Senior Vice President, Cybersecurity & Infrastructure	As the Head of Cybersecurity of the Group, I am responsible for all cybersecurity matters across the conglomerate of 10 businesses ranging from retail & food to healthcare & education. Achievements: • Revamp the DevOps security practice and improve pipeline security practices

February 2019 – September 2020	- Developed unified endpoint management across group covering all computers and mobile devices - Introduced the first large scale Managed Detection & Response (MDR) program in Singapore - Created cybersecurity channel on YouTube for the organization https://www.youtube.com/channel/UCJV1knD4fKXm6aXd7Ip2O4g As head of Infrastructure for the Group, I am responsible for the management of our data centres and public cloud environments. I am also responsible for driving FinOps adoption across the organisation and also the DevSecFinOps pipeline. Achievements: - Implemented Hyperconverged Infrastructure to maintain a private cloud infrastructure for our data centre. - Migrate parts of network off expensive MPLS to cheaper L2 links with SD-WAN.
Cybrary Instructor February 2019 – Present	I currently deliver a class on Cybersecurity Architecture Fundamental on Cybrary – a Massive Open Online Course (MOOC) provider offering free IT and Cyber Security training to anyone, anywhere, and every skill level. Link to class: https://www.cybrary.it/course/fundamentals-of-cybersecurity-architecture/
Government Technology Agency of Singapore Director, Government Cybersecurity Services October 2018 – February 2019	As the Director of Cybersecurity Services, I am responsible for managing services delivered to the whole of government such as CISOs, security technologies exploration and consulting. Achievements: - Created the DevSecOps group to work on governance of security within DevOps processes. - Work on cloud security management and practices.
Government Technology Agency of Singapore Director, Government Cybersecurity Operations January 2017 – September 2018	As the Director of Cybersecurity Operations, I am responsible for the day to day running of the Security Operations Centre. Achievements: - Reorganized the operations to be an integrated function. - Developed automated playbooks for incident response - Mentor various organizations in developing the cybersecurity eco-system in Singapore. - Authored security reference architecture for systems based on microservices and serverless design. - Delivered presentations on "Security operations in the cloud-era"
Singapore University of Technology and Design	As an adjunct fellow at the SUTD Academy, I help shape the syllabus for the cybersecurity programme. Achievements:

Adjunct Fellow October 2017 – Present	▪ Created and delivered classes on Cybersecurity Architecture Fundamentals and digital Forensics ▪ Delivered seminars on current trends in industry. ▪ Work on creating Masters level classes for next generation topics for cybersecurity. ▪ Appointed to train fresh hires for the Cybersecurity Agency of Singapore in Digital Forensics.
Essilor AMERA Pte Ltd Director, Enterprise Architecture & Integration May 2014 – December 2016	As a part of the CIO office, I was hired to help build a regional Enterprise Architecture team to support the IT consolidation of the AMERA (Asia-Pacific, Middle East, Russia, Africa) region. In this role, I designed and built the Enterprise Architecture model for the organization focusing on governance and reuse. My role was to advice the CIO on strategic decisions, execute business objectives, guide solution development teams and harvest assets for reuse. I am also the owner of all middleware operations (from development consulting to operational support of all middleware) Achievements: ▪ Designed the DevOps model for the organization ▪ Design and oversaw the 1st few ecommerce platforms for the region. ▪ Implemented new hyper-convergence technology for the data centre based on Nutanix platform. ▪ Implemented requirements management tools to manage sign-offs and testing coverage. ▪ Developed solutions to help improve our manufacturing floor (e.g. handheld bar code scanners based on Android devices, WIP monitoring dashboards) ▪ Help reduce opex by modernizing technologies in our customer service and production systems. ▪ Implement the Enterprise Information Management Program with new technologies such as data virtualization ▪ Design and lead efforts to modernize applications with the use of API manager/gateway and Identify & Access Management. ▪ Developed the operational support structure for all middleware operations.
IBM Social Business Evangelist IBM Collaboration Solutions August 2011 – April 2014	As a member of the IBM Collaboration SWAT Team, I am responsible for driving revenue and product adoption within the Asia Pacific region by presenting and demonstrating the IBM Social Business Solution, product portfolio and business value for our customers, partners and internal IBM sales professionals. Work with many large banks across the world to implement social business. Achievements: ▪ Designed the social relationship manager program for a large bank. ▪ Helped several large enterprise in their social transformation. ▪ Developed social team management methodology ▪ Worked with CMOs to develop social analytics capabilities
CSC Director, Governance	As the regional director for governance for CSC in Asia, I was responsible for the governance of all projects across Asia, looking at the efficiency and effectiveness of governance mechanisms put in place for all major projects.

Managed Service Sector January 2011 - July 2011	As the acting Director of Program and project management office, I am responsible for the project managers across Asia for the Manage Services Delivery organization; including large banking customers such as Maybank.
IBM Regional Lead Security Architect/Consultant IBM Security Services June 2010 – January 2011	As the regional lead security consultant for IBM in ASEAN, I was responsible for planning the security strategy and direction for the team and also assist in all major security engagement in the region. I was also responsible for training the security practitioners on security skills. Achievements: ▪ Designed the security architecture for a large global bank. ▪ Perform security audits for customers, getting them ready for ISO27001 certification. ▪ Help organizations develop security policies. ▪ Help banks comply to central bank regulation around security.
IBM Consulting IT Architect SOA Advanced Technologies, IBM Software Group December 2006 – June 2010	As a senior IT architect and a member of the IBM worldwide SOA Advanced Technology team, (which is the IBM Software Group worldwide client-facing SOA team), I was supporting the Asia-Pacific region and my responsibilities include technical responsibility for SOA engagements and contributing to thought leadership in the region. Achievements: ▪ Part of the worldwide SOA Governance team that developed Intellectual Property for corporate wide use. ▪ Developed and implemented governance structures and processes for major customers in the region. ▪ Work on the SOA integration of St. George's & Westpac Banking Corporation after the merger. ▪ Worked at Landbank of Philippines to perform Business Process Management (BPM) around account opening and converting their Mainframe banking applications to SOA to support the BPM activities. ▪ Developed a PoC for Barclays Bank to demonstrate WS-Security from WebSphere Message Broker to Windows Communication Foundation (WCF) applications. ▪ Developed the SOA governance framework for Standard Chartered Bank.
Bowne & Co., New York, NY Senior Technology Advisor, Enterprise Architecture October 2004 – December 2006	Responsible for setting architecture standards within the organization. Development of research tools to improve productivity of business development teams. Achievements: ▪ Designed and implemented a corporate intranet based on SharePoint replacing less user-friendly legacy technology. ▪ Created an application framework to standardize application design and increase efficiencies. ▪ Updated and standardized internal applications by designing a migration process to move older applications written in PowerBuilder to .Net, ▪ Introduced and piloted collaborative development environments using Microsoft .Net technologies including Team Foundation Server.

	- Supervised offshore development companies to perform cost-effective development and testing of applications. - Introduced formal requirements authoring and validation process using the RAVEN toolset that captures requirements in activity diagrams. - Audit software design including security and network concerns.
Avon Products, Inc. **Rye, NY** Senior Architecture Specialist / Manager, Technology Architecture August 2001 – September 2004	Responsible for creating and governing technology and application architectural standards across the organization. Promoted and monitored architecture disciplines as a member of a select Architecture Working Group. Audit system designs for enterprise applications including global e-commence systems and supply chain management systems. Achievements: - Developed the Software Development Lifecycle standard for all application development projects. - Introduced and promoted software modelling discipline and the use of UML to standardize processes and increase efficiencies. - Developed documentation template for development project deliverables. - Introduced current technologies to leverage existing legacy applications and databases. - Introduced SOA via web service to the mainframe to utilize existing CICS transactions for distributed systems. - Designed a SOA architecture to support large scale SOA implementation. - Worked on multiple WebSphere versions on various platforms from Windows to AIX to OS/390. - Worked on shifting technology base of IVR system from CIPIC to Java/SOA for connection to CICS and DB2 on the mainframe. - Implemented SQL access to IMS database on OS/390 - Helped to introduce wireless technologies as part of systems for field sales personnel. - Created program to inform IT organization of industry developments and to help members keep abreast of current technologies. - Participated in troubleshooting and guiding large-scale system development and deployment of a cross-border system that spans 10 systems in 15 different continents.
Keane Consulting, Inc. **Nationwide, NY** Senior Principal Consultant September 2000 – July 2001	Member of elite corporate Architecture Practice supporting all branches nationwide. Led and mentored local teams at client locations. Developed and conducted classes on new technologies for staff consultants. **Client Accounts**: **b-there.com** (provider of global meeting solutions): Improved system stability and reliability by redesigning the current architecture of the Application Service Provider's system for managing events and attendees. Worked extensively with the Allaire suite of products (Cold Fusion, JRun). Achievements:

	- Designed the system to allow growth with increased load as client's customer base grew. Oversaw client's transition from a one-server company to a load-balanced multiple-server configuration. - Re-architected the system from a Cold Fusion based system to a Java 2 Enterprise Edition (J2EE) solution using Java Server Pages, servlets and Enterprise JavaBeans (EJB), creating system scalability to handle higher volume with minimal upgrades to hardware. - Designed a system of seamless integration of the [what] product into client's website using XML and XSL. - Designed multiple XML hooks to partner integration like credit card processing, restaurant reservation systems and online mapping tools. **Oxford Health Plans:** Developed a new framework to update client's applications from a Forte-based architecture to a J2EE platform. The solution was based on the iPlanet suite of products running against an Oracle database and a legacy hierarchical database. Achievements: - Designed the development framework for the client's developers to standardize the development process. - Designed a components map for client to move business logic off database-stored procedures to EJBs. - Helped develop a migration process and master document relating to the porting of the client's existing applications to the J2EE platform.
Hewlett-Packard Company **Palo Alto, CA/** **Singapore** IT Consultant January 1996 – September 2000	Extensive experience with all stages of project lifecycles, ranging from support to development team. Led and mentored production support and development teams in a dynamic corporate IT environment. Developed 24 x7 support models for global systems. Systems worked on include: **Education Management** Consolidated multiple systems across the globe to a single application to handle employee training management. The system is used by 120,000 employees worldwide plus ten of thousands of contractors hired by HP. Achievements: - Consolidation of multiple systems to two databases worldwide feeding to one data warehouse for all reporting. - Optimized application to work over the WAN with minimal delay at client's machine. - Helped to develop a 24x7 data warehouse solution for worldwide reporting at any time regardless of time zones. - Upgraded system to handle multiple languages including double-byte Asian languages. - Created one of the first web reporting tools for HP in 1996 to allow employees to look up their training history. - Migration of application off HP3000 (MPE) platform to HP9000 (HP-UX) platform. **Corporate Portal** Helped to develop a corporate employee portal allowing a single sign-on to every HR system in the company. This project made use of the

Netcentric portal software with a LDAP server to map roles and permissions to the various systems along with digital badge technology to authenticate users. The system also used replication technology to populate the rules and permissions across all worldwide regions, allowing traveling employees to access the systems.

Incentive Pay
Helped to develop a new incentive pay system for the sales force, allowing creative and flexible pay plans to be managed by the respective businesses. This system was built on the Trilogy Selling Chain application suite.

Achievements:
- Moved the application from a Visual Basic client-server application to a browser-based solution.
- Developed a data warehouse reporting solution in Oracle to support management reporting.
- Designed a wireless gateway allowing salespeople in the field to wirelessly look up their sales record and pay status.

Executive Compensation
Developed a web-based application allowing senior executives to simulate "what-if" scenarios in determining executive compensation. This application was based on the Microsoft suite of products and built using ASP and VBScripts.

Human Resources
Worked on PeopleSoft HRMS to integrate the HR systems of multiple countries to a consolidated regional system able to handle native language and multiple currencies in a single database with global reporting capabilities.

Achievements:
- Made the system work on at least five versions of MS Windows (English, Japanese, Korean, Simplified Chinese, and Traditional Chinese).
- Migrated the system off the HP3000 platform to the HP9000 Unix environment.
- Performed various upgrades with newer versions of the PeopleSoft Application.
- Worked with Citrix WinFrame to allow sites with low bandwidth use the PeopleSoft client remotely.
- Implemented the BEA Tuxedo application server to help performance over the WAN.

Career Management
Helped implement a web-based tool allowing employees to manage their career goals through (i) a series of profiling questions and (ii) creation of a list of jobs within the company consistent with such employee's career goals.
Worked with CareerSteps to port and customize part of the application to the HP-UX platform.

Education History

Master of Science (Information Systems) Pace University White Plains, New York	Research and final paper focused on Web Services and WS-Transactions. Graduated with a GPA of 3.92.
Bachelor of Computing (Computer Science) Monash University Melbourne, Australia	Double Major in Computer Science & Information Systems with a minor in Management. Graduated in top 5% of class.

Professional Affiliations

International Information Systems Security Certification Consortium	Certified Information Systems Security Professional (CISSP) Certified Cloud Security Professional (CCSP)
The Open Group	TOGAF Certified
Worldwide Institute of Software Architects	Practicing Member
IBM Certification	Certified SOA Solutions Designer
ISACA	Certified Information Security Manager (CISM) Certified Data Privacy Solutions Engineer (CPDSE) COBIT Certified
Amazon Web Services	AWS Certified Solutions Architect – Associate AWS Certified Solutions Architect – Professional AWS Certified Security Speciality AWS Certified Developer - Associate
Others	Certified FinOps Practitioner Certified ISO27001 Lead Auditor Qualified Information Security Professional (QISP) Certificate Trainer in Cloud Security Knowledge v4 (CCSK) PGP Certified Technician Encase Forensics Investigator

Patent filed on Governance Topology for SOA Governance (Patent #: US 8244548)
Patent published on integration email calendar to PABX for conference call attendance (IP.COM disclosure number: IPCOM000183540D)

References

References available on request.