**Alvin Chang**

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Canary Wharf, London

**ABOUT**

* I have only two fundamental skills:
  1. convincing different people using different means;
  2. understanding how things work fundamentally, be it technology or behaviour or risk.
* I help people work together; the Visio diagrams are just a by-product.
* I'm a
  1. Programmer turned Hacker, turned Cracker, turned Phreaker.
  2. Actuarial/Data/Computer Scientist, turned Electrical Engineer.
  3. Developer turned DevOps, turned DevSecOps, turned Cloud Security.
  4. Mathematical Modeller turned Algorithmic Trader, turned Fractional CTO.
  5. Cochrane Skin Group Reviewer turned EternalOne BioIndustry Club Advisor.
  6. Start-up Founder turned BBC Dragons' Den (Shark Tank) Contestant on TV.
* I do
  1. Manage people's expectations, not people themselves;
  2. Change people’s mindset; break silos;
  3. Lead by showing examples of *anything is possible*;
  4. Mentor by giving timely feedback;
  5. Coach by breaking the stereotypes;
  6. Tell computers what to do and how to do it;
  7. Predict the future with 70% accuracy.

**KEY SKILLS**

**Hardware Architecture, Software Architecture, Stakeholder Management**

**EDUCATION**

**MSc, University of Cape Town,** *"A Micropower Ultra-Wideband RADAR Profiling System"*

**BSc(Hons), University of Cape Town,** *"A Tool-Based Approach to Virtual Sculpting using DMFFD"*

**CERTIFICATES**

**AWS Certified Cloud Practitioner, Certified SAFe 4 Practitioner**, **Certified Scrum Masters (CSM)**, **Red Hat Certified Architect (RHCA** ®**), RHCDS, ITIL, PRINCE2**, **RHCE**

**APPEARANCES/CONFERENCES**

**BBC Dragons' Den , Opensource.com**, **Open Source Convention (OSCON)**, **FOSDEM**

**BOOKS/BLOGS**

**The DevSecOps Handbook** · Packt Publishing · March 2021 - Current

**Container Security** · FAUN · 5 Feb 2021

**Top Strategy Targets the Hearts** · Medium · 31 Jan 2021

**Shifting Common Sense to the Left** · Medium · 1 Dec 2020

**Risks vs Mitigations** · Medium · 6 Nov 2020

**Application Operations in A Multi-Cloud World, and DevSecOps** · FAUN · 1 Oct 2020

**Security is A Mindset** · Medium · 19 Aug 2020

**CVSS Score of COVID-19** · Medium · 3 Mar 2020

**PROJECTS**

[github.com/alvin-chang/frankensteinprophet](https://github.com/alvin-chang/frankensteinprophet) - Stock price predictions & automated trader

[github.com/alvin-chang/covid](http://github.com/alvin-chang/covid) - Local COVID status GPS redirector

[indiegogo.com/projects/aladdin-key-to-remember-open-source-hardware#/](http://www.indiegogo.com/projects/aladdin-key-to-remember-open-source-hardware#/) - USB security key

**EXPERIENCE**

Jan 2021 – Feb 2021 · **Security Developer** · Freelance · London

I developed a white-label DSOMM assessment tool for a software distributor (NDA) in Germany. Channel partners use it to engage and improve customers' DevSecOps maturity levels.

Aug 2020 – Sep 2020 · **DevSecOps Consultant** · Freelance · London

I performed an OWASP DSOMM assessment for a financial company (NDA) in London. The company gained one level higher of maturity.

Apr 2019 – May 2020 · **Security Architect** · Sage · London

I created and drove through £X million business case to protect its assets using Cloud Workload Protection Platforms (CWPP) on AWS/Azure/GCP. This entailed presenting and managing relationships across all levels of the company, including senior stakeholders such as the group CTO, CPO, CIO, CISO. The product approval rate increased by 1,000%.

I introduced "security is a mindset." Created DevSecOps Guild and Container Security SIG. Defined security architecture policies, standards, guidelines and gain commitments from stakeholders. This meant I could lead and manage multiple streams of projects which improve agility, automation, cloud security, continuous reporting, integration, and visibility.

My architectural designs (see appendix) included improving agility by secure SDLC with DevSecOps pipelines, SAST, DAST, RASP, container security, serverless security, and automated cloud governance. Complete automation of immutable infrastructure written in Terraform with EDR, ATP, DLP solutions built-in. I designed and integrated cloud security in depths by CWPP. I created continuous reporting by aggregating multiple real-time data streams such as secrets management, vulnerability management into RESTful API. Improved integration by shortening the feedback loops from vulnerabilities to fixes. Using edge computing (Fastly), I devised a mechanism for antivirus for uploaded content. I also managed, led by example, mentored, coached, and hired engineers.

Oct 2017 – Feb 2019 · **Secure DevOps/DevSecOps Solutions Architect** · Worldpay · London

I designed and implemented secure DevOps (DevSecOps) solutions based on OpenShift containerisation in AWS/Azure/GCP. Built secure SDLC CI/CD pipelines based on Jenkins to create application containers. Provided infrastructure as code provisioning based on Ansible and Ansible Tower on AWS. Integrated Single Sign-On with AD backends for the platform. Reviewed Static Code Analysis with Veracode/SonarQube. Executed Vulnerability scanning with Qualys. Injected SIEM with MSSP. Integrated with Aqua and Twistlock for container security. The solution gained accreditations of PCI-DSS, ISO 27001 and NIST/NIST CSF. I enabled the new payment gateway to be launched and increased performance and resilience by 500% while decreasing the time to fix to a third. I also managed, led by example, mentored, coached, and hired engineers.

Apr 2016 – Oct 2017 · **Project Consultant (Part-Time)** · Altum Consulting · London

I have been working on several projects, including Facebook, AWS, Azure, and GCP. I've modernised the clients' systems, and they achieved 7x in performance.

Dec 2015 – Mar 2016 · **Technical Project Manager** · Red Hat, Inc. · EMEA

I managed a team of architects and consultants involved in developing DevOps projects OpenShift, CloudForm, and IdM for easyJet, Fidelity, and Sanger Institute. My institutional customer was able to start sequencing genomes from day 1.

Dec 2014 – Dec 2015 · **Extended Parental Leave (12 Months)** · London

Mar 2014 – Nov 2014 · **Head of DevOps** · We Are Friday Limited · London

I led a team of engineers in developments and operations. We are responsible for DevOps and managing incidents. Introduce DevOps into the organisation by building and managing a team of DevOps engineers. Budgeting, resource allocation, and scheduling. Technical design authority (TDA) for in-house OpenStack cloud and client architecture and infrastructure. Automation with Packer and Docker, Puppet Enterprise, Chef, and Ansible. Managing incidents, e.g. Heartbleed, POODLE. Clients include HSBC and Nuffield. Projects involve PCI-DSS age verification and AWS VPC. I increased company revenue by 300%. I also managed, led by example, mentored, coached, hired engineers.

Sep 2013 – Nov 2013 · **DevOps Architect** · INPS Ltd, Cegedim Group · London

Design, implement and verify a HIPAA-compliant cloud platform used by GP based on CloudStack & XenServer, automation using Chef and continuous integration with Jenkins. It was connected with the NHS N3 network and EPS in the UK.

Jun 2012 – Aug 2013 · **Founder** · CHANGTECH · London

Provide consulting services on cloud enablement, system architecture, deployment engineering and operational support—provision Red Hat Enterprise Linux on vast scales with Red Hat Network Satellite Server. Incorporate Red Hat Directory Server into the domain to provide Single-Sign-On (SSO) enterprise-wide. Deploy Red Hat Cluster Suite to support distributed storage & high-performance computing (HPC). Design, prototype, and implement USB-based authentication systems consisting of AVR microcontrollers and corresponding software on BBC Dragons' Den.

Jan 2012 – Mar 2012 · **Linux Architect** · Financial Times · London

Design, implement and verify the hybrid cloud architecture to provide DevOps environments based on CISCO UCS blades, VMware vSphere, and Red Hat Network Satellite Server with SSO via Windows AD. Author high-level design and low-level design documents (HLD and LLD) and write run books and act as a subject matter expert (SME) for Linux. The FT archived agile and saved 70% in costs while performance increased by 300%. The deployment time reduced from weeks to minutes.

Feb 2011 – Sep 2011 · **Infrastructure Architect** · BlackRock · London

Data centre migration and consolidation from Solaris to Red Hat Enterprise Linux VM across multiple US states in a load-balanced F5 Big-IP environment with Apache/JBoss middleware and Sybase backend. BlackRock saved 50% in hosting costs.

Jan 2011 – Feb 2011 · **Systems Architect** · ClustrMaps Ltd · Milton Keynes

I redesigned the web infrastructure with load-balancing web servers and database servers with SoftLayer cloud, which increased performance by 250%.

May 2010 – Sep 2010 · **Associate** · Morgan Stanley · London

Work in the Enterprise Computing team, part of the Enterprise Infrastructure department, at the Technology & Data division. Manage massive scale (50,000+ hosts) infrastructure with load-balanced, highly available servers on distributed and networked file systems with in-house tools. Technologies used: J2EE, Java, RHEL, Bash, Perl, Python, RPM, JBoss, WebLogic, Tomcat, Apache, WebSphere, F5 Big-IP. Also, participate in projects involving co-location for low-latency, high-frequency trading. I reduced latency by 1.5ms by fixing Linux kernel bugs.

Feb 2009 – Aug 2009 · **Systems Engineer** · BrightTALK Limited · London

Lead and mentor junior/mid-level systems engineers in Enterprise Software on Linux, Windows, and Mac platforms. Manage systems & services infrastructure using Spacewalk/Cobbler and Puppet on VMware and Amazon EC2/S3 (AWS). Provide Business Intelligence and CRM via Salesforce, audit IT security, and respond to CVE security advisories.

Sep 2007 – Dec 2008 · **IT Consultant** · SunGARD, AeroFone, OpenX · London

As an independent IT consultant, I worked with various clients regarding their infrastructures:

* Design and build highly available DNS systems using BIND that feature hidden authoritative servers with multiple masters globally. The systems provide split views for the cooperate network vs the Internet.
* Design and build a continuous integration environment. Once someone checks in new codes, automatic unit testing started, followed by a full integration test on VM in the Amazon EC2/S3 (AWS) cloud.
* Implement monitoring and central authentication/authorisation across all customer-facing systems such as websites, CRM, request/issue tracking, wiki, code reviewing, source browsing, versioning, and continuous integration systems.
* Design and implement user account syncing between Red Hat Directory Server and Windows AD via Kerberos & NIS. Samba servers join the Windows domain to provide shared printing. These allow single sign-on across Windows and Linux.
* Design and implement mobile messaging platforms based on Linux, Apache/Tomcat, MySQL and PHP with distributed monitoring, database replication, and off-site backup.
* Design and migrate NIS-based user accounts to Kerberos-based authentication, LDAP-based authorisation user accounts.
* Work closely with software architects and project managers to design the infrastructure needed to provide independent stock valuations and ensure timely delivery across the entire SDLC and ITIL process.
* Liaise with software & hardware vendors, plan data centres, and write Disaster-Recovery and Business-Continuity Plans and carry out dry runs.

Apr 2005 - Mar 2007 · **Unix Systems Manager** · University of Cape Town · Cape Town

Manage the infrastructure team, which specify, test, deploy, and maintain both existing and new servers, in particular:

* ISP functions – Firewall/Router (iptables/zebra), Mail Server (Postfix), Web Server (LAMP), and Dial-Up Server based on Debian/Ubuntu
* Design and implement e-mail solutions with MTA+LMTP+IMAPS to provide spam filtering, virus protection, and PGP/PKI rollout.
* VPN – Design and implement IPv6 over own GRE tunnel as a VPN solution.
* HPC Cluster – Mass deployment of HP ProLiant DL with distributed computations (MPI), fair-use policies and resource management (PBS Pro). The cluster features its own Firewall/Router, PXE-Boot, DHCP, DNS, NTP, and NFS servers with DRBD+GFS. Virtual consoles, HP ILO, HP OpenView and HP SIM, remotely manage all nodes.
* Provide scientific computing capabilities with FPGA add-on boards.

**Technologies**

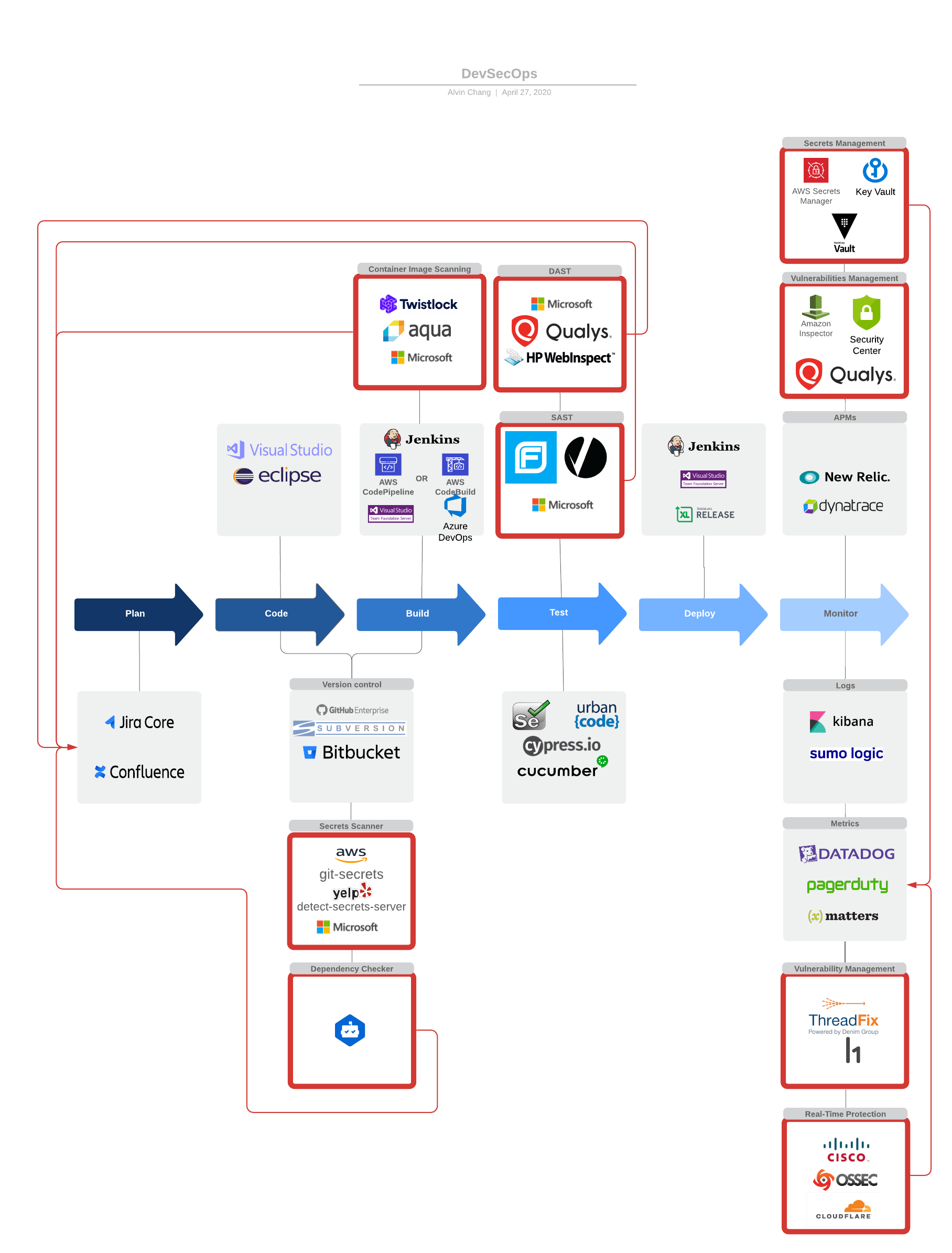
DOS/Windows -> Slackware -> Red Hat -> Ubuntu -> Amazon Linux -> Docker

C/C++ -> Java -> Python -> Go

Ruby -> Node.js -> React/React Native

Bash -> awk -> Perl

Excel -> PyTorch/Tensorflow  
DC -> HPC -> VM -> Cloud -> AWS -> GCP -> Azure  
SOAP -> REST -> GraphQL  
PBS Pro -> Kubernetes  
Docker -> Serverless -> dApp  
CfEngine -> Puppet -> Chef -> Ansible -> CloudFormation -> Terraform

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