

MOHAMED ISSA

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PROFESSIONAL PROFILE

A Senior Systems Engineer with a track record of designing and leading the delivery of solutions for Defense and mission-critical high-demand usage for tech-intensive industries such as telecoms. Expertise in leveraging DOORS for requirements traceability and SysML/UML for system modeling. Proven ability to resolve complex technical challenges, produce clear technical documentation, and support bid activities through accurate estimation. Seeking to apply system-level thinking and problem-solving skills to deliver robust solutions in dynamic environments.

KEY SKILLS

- High degree of analytical skills, stakeholder analysis designing and devising a range of technical solutions for a diverse set of unique niche products for blue chip clients including **Vodafone**.
- **ITIL foundation and PRINCE 2 foundation certification** with technical project management experience delivering projects in Vodafone's telecom domain.
- **Technical:** A motivated self-starter in constantly updating own technical skill set, with an appetite to keep refreshing and extending grasp of emerging technologies. Current key technical skills include:
 - Experienced in multiple implementations in Aerospace/Defense, Transport/Logistic, Energy utility, Satellite and telecommunications fixed fiber optics and 5G wireless telco application of **3GPP** standards.
 - **Key approach to all of my designs – outcome based agile safe model based engineering API first approach– use of object oriented, DOORS (IBM), HLD / LLD EA blueprints.**
 - Systems Engineering Lifecycle: Requirements management, System Design, Integration, Validation & Verification (V&V).
 - **Tools:** IBM DOORS, SysML, UML, Cameo/MagicDraw, MS Office, Vision, JIRA.
 - **Technical Documentation:** Requirements Specifications, Design Documents, Test Plans, Use Cases.
 - **Domain Knowledge:** Electronics, Software, Mechanical/Environmental Qualification (e.g., MIL-STD-810).
 - **Core Competencies:** System-level thinking, bid estimation, complexity management, cross-functional collaboration.
 - CI/CD Jenkins, Cloud DevOps: Kubernetes(K8s), Docker, OpenStack, AWS/GCP(working towards **AWS Solutions Architect Certification**).
 - **Programming:** Golang, Python, Java, C++(mission critical nodes requiring high performance), Python, gRPC, Rest services, **React TypeScript, NodeJS, TypeScript. Active MQ, yaml. Swagger. IoT middleware MQTT messaging, node-red and OSS COT openNMS.**
 - **Cloud:** Bash scripting, Linux, Docker, Kubernetes, Helm charts, AWS/GCP/Azure Cloud.
 - **Standards:** 3GPP Rel 15/16/17/18, ETSI NFV, TM Forum APIs, eTOM, SID, **Open APIs**
 - **Security:** Cloud IAM, Encryption standards 5G PKI, zero-trust mTLS, TLS1.3, OAuth2.0, OIDC, JWT, JWKS, SSO, RBAC,
 - **Networking:**PoE switches L3 and L7, F5, TCP/IP, Packet Forwarding Control Protocol / UDP/ SCTP, TCP/IP, 5G - SD-Radio, LAN and WAN design, SDWAN, 40F firewalls, PoE Switch configuration, network planning and policy management, LAN, WAN, SDWAN, 5G Core and Internet.
 - **Extensive experience of OSS and BSS domain as a Solution Architect design HLD/LLD/TRS.**
 - **Agile, Scrum, Kanban, Jira. DevOps, Github, GitBash, and puppet framework, automation, Linux** shell scripting, skilled in backend REST API development in Go, in memory cache solution redis cache, MongoDB. Integration with front end java script apps React, node.js/express solutions.
 - Multi-tenant 5G networks, IoT embedded systems, video streaming, real time voice, solutions to manage high performance low latency real time devices. Coding C++ and Rust programming.

CREDENTIALS

- **Msc in Software Engineering (AI, ML, AI Deep learning and Blockchain) - Quantic School of Business and Technology Washington DC 20003, USA.**
- **Executive MBA – Quantic School of Business Technology Washington, DC 20003 USA**
- **MSc in Data Communications Systems – Brunel University**
- **BEng (Hons), Electronic & Electrical Engineering – First Class Honours Degree, Brunel University**
 - **Thesis Final year Project “Simulation and modelling techniques using OOA/OOD/OOP” implemented a model based engineering simulator in Visual C++ with high performance multi-thread concurrency for optimal use of all CPU cores.**
- **PRINCE 2 Foundation, APMG Project Management Foundation Accreditation**
- **ITIL v4 Foundation, People Cert.**

CAREER HIGHLIGHTS

2025 Sept – to date: **Systems Architect | SS8 Networks, Farnborough UK**

Built, configured, and operated **Red Hat OpenStack Platform**, delivering a highly available private cloud with resilient compute, networking, and storage services for production workloads.

Administered **Red Hat Enterprise Linux (RHEL)** systems at scale, performing OS hardening, patching, troubleshooting, and performance tuning across OpenStack and OpenShift environments.

Designed and supported **high availability platforms**, implementing monitoring and logging solutions to ensure service health, rapid fault detection, and operational visibility.

Developed and maintained **automation and orchestration** using **Ansible**, standardising OpenStack and OpenShift deployments and reducing manual operational overhead.

Worked extensively with **virtualisation technologies** underpinning cloud infrastructure, supporting VM lifecycle management and integration with container platforms.

Engineered and troubleshoot **networking components**, including routing, switching, security groups, and load balancing, to support multi-tenant cloud environments.

Built and operated **container platforms** using **OpenShift, Kubernetes, and Docker**, enabling deployment of cloud-native applications on private cloud infrastructure.

Integrated **CI/CD pipelines** within Agile teams to support automated build, test, and deployment of infrastructure and platform services.

Applied **Red Hat best practices and certifications (RHCSA/RHCE/RHCVA)** to deliver secure, supported, and enterprise-grade cloud solutions.

2023 Sept – 2025 Aug: Zephyr 5G Systems Architect, AALTO HAPS (Airbus Subsidiary), Farnborough UK.

- Managed end-to-end requirements lifecycle using IBM DOORs, ensuring traceability from stakeholder needs to V&V.
- Led PoC studies and use-case analysis to optimize system IoT performance, resulting in 20% cost savings in building three beta direct to device gateways.
- Collaborated with software/electronics/mechanical teams to ensure design cohesion and compliance with DO-178C/DO-278A standards.
- Working with RTOS for TC/TM interfaces handling platform mission critical data whilst flying in the area for indefinitely due to solar power cutting technology providing high bandwidth satellite connectivity for terrestrial, military Defense and for earth observations and life sciences at a fraction of the cost of traditional LEO low orbit satellites reducing latency from 50ms to around 5ms in the stratosphere.
- Designing Strategic Architecture of embedded solution **IoT** hardware with Device-to-Device Gateway that connects to eNodeB of 5G for direct-to-device connectivity and IoT solutions in remote locations.
- LTE/5G BSS integration of NodeB with custom RFSOC to provide a device to device connectivity between a UE in a network operator like Vodafone, up converting eNodeB signal from S-Band to Q-Band using custom RFSOC at around 38GHz line of site transmission to a pseudo satellite platform in the stratosphere and RFSOC on the high-altitude platform which down converts the signal to S-Band in a remote service area on the ground. This product I have worked on is deployed on top of high altitude air vehicles operated with solar panels and rechargeable batteries. Typically, the integrated solution can stay in the air for six months and is cheaper than cellular ground station base stations and can be moved anywhere remotely in the globe, a powerful solution for earth observation, military, IoT and terrestrial communications. Monitoring and tuning radio network parameters for optimal RSSI, SNR, network performance for device attachments to the LTE/5G

networks on both ends service end and network operator end.

- Implemented IoT middleware messaging solutions based on MQTT, Node-Red front end and with backend OpenNMS systems for OSS and deployed influx DB time series DB.

Key Achievements

- Deployed a proof-of-concept IoT solutions in OSS domain utilizing node red and MQTT messaging platform. Created hardware design using Moxa IoT solution integrated the prototype with AWS cloud openNMS platform via wireless satcom star-link router providing complete mobility and versatility of IoT with TLS 1.3 SSL security in the cloud.
- Delivery of low level integration that enabled IoT RJ45, USB to RJ45, Fortinet Switches, 40F firewalls and cabling to Moxa ioThinX4510, moxa 45MR-1601 for wet contacts, 45MR-2404 for remote control, 45MR-3810 for analogue signals and voltage levels and 45MR-6810 for environmental sensors temperature and humidity and rain sensors. IP plan of software defined LAN and integration with WAN with TLS 1.2 security. Firmware upgrade of moxa cards, IP planning and implementation and security hardening and firewall policy on 40F.
- Successful beta deployment of Direct to Device Gateway and HAP in Japan and Kenya secured long term investment for AALTO HAPS - Airbus from [Japanese consortium Space Compass and NTT Docomo](https://www.aaltohaps.com/ntt-docomo-and-space-compass-partners-with-airbus-on-haps-committing-to-a-usd100-million-investment-in-aalto/) <https://www.aaltohaps.com/ntt-docomo-and-space-compass-partners-with-airbus-on-haps-committing-to-a-usd100-million-investment-in-aalto/>

2022 Sept – 2023 Sept: CRM Identity and BSS Integration Technical Product Owner / Telco Solutions Architect, Virgin Media o2, Telefonica London UK.

- Assessing current enterprise architecture and defining ESA Product Roadmap and creating data models. Technical ownership of identity stack on **AWS cloud identity SAAS platform**, and interfacing into SOA stack on Apigee on **GCP cloud** liaising with a cross matrix of stake holders in CRM BSS domain, leading stake holder workshop delivering range of solutions within CRM and identity space. Working with OAuth 2.0, OIDC, JWT/JWKS and single sign on functionality for the CRM integration with Netcracker billing system. Managing roles and assets/entitlements from identity online applications utilised by Netcracker ecare, ecom and my o2 mobile applications as well as agent facing applications and call center IVR application. Leading a team of developers and QA's Scrum team, agile methodology, Kanban, Jira.
 - System Engineering modeling SysML(Cameo) approach in definition of use case, activity, sequence, state machine and block definitions designing interaction between complex solutions involving OSS, BSS Net Cracker platform and 5G network integrations. Use of UML language in the modelling framework. Use of Zachman framework at enterprise level and agile framework in software release sprints.
 - Strategic Architecture Product road mapping delivered on AWS cloud and integrated against SOA gateway implemented on google Apigee solution for orchestration and interaction with backend systems.
- #### **Key Achievements**
- Played key role in the successful delivery AO2 accelerate program after culmination of two year's work stream to migrate customers from IBM legacy billing system to netcracker stack.
 - Successful delivery of identity customer journeys on ecare and net-cracker.
 - Delivered data migration of linked account customers (high value customers) from legacy to netcracker, stack liaising external customer comms with marketing.

2021 May – 2022 Aug: CRM OSS and BSS Telco ESN IT Transformation Program - Enterprise Architect / Tech Lead, ESN Motorola Solutions, Basingstoke UK.

- **Delivering in Agile methodology with a Scrum team designing On premise cloud solutions** deploying integration between OSS/BSS CRM and Mobile Device Management application services including **Workspace one** Airwatch MDM and Kodiak personal safety communications OTA software. With the role of **CI/CD continues** integration **leading** a team of developers and infrastructure SMEs delivering IoT solutions for Global connectivity across range of networks deploying secured solution with TLS 1.3, OAuth 2.0, SAML/OIDC authentication, MFA and SSO. Working with COTs deploying **Node.js** apps preferred technology for IoT. Working with telecommunications domain **3G/4G/5G**. Working with a number of other application deployed on **ORACLE PaaS Fusion ESB Middleware** deploying product order care systems and service catalogue management system used for service orchestration and fulfilment. Working with Order management and fulfilment solution.
- **Developing and writing code** for CRM software based on state of the art technology **nodeJS, Full-Stack React, Typescript, ES6+, java script front end and backend modern distributed computing. Rest/SOAP API's. Active MQ**, Also working with **Java based micro services, Spring boot JPA for mapping OO objects to persistent relational database**, Oracle SOA based solution for **inventory and order catalogue management** build on top of Weblogic. Working with rest web services, web sockets, **Swagger, yaml, JSON and REST API** design.
- Lead end to end **performance tuning** of React based node.js front end applications, performance tuning of Java EE micro services deployed on Oracle for orchestration. Scaled hardware deployed on on premise Azure cloud. Tuned web server JVMs to deliver required performance.

2020 May – 2021 May: Professional development.

- Keeping up to date with current IT trends, researching on Cloud technologies in particular Azure, use of Kubernetes to manage deployment of containers, Docker containerization of applications, agile and micro

services move from monolithical applications and look into implementation of micro services with **Rest/SOAP API's** spring bootstrap, TypeScript, React, nodeJS for real time data intensive applications. In addition ITIL v4 foundation certification to manage IT operations and projects impact on live services.

2018 Nov – 2020 May: Azure cloud Oracle SOA Apps Solutions Architect/Dev Ops Lead, Maersk UK Ltd, Maidenhead.

- **Azure Cloud solution SAAS platform developing and writing Java based** code deploying Oracle SOA cloud apps with the role of a Solutions Architect on(middleware stack of IoT) for a range of bespoke applications used to manage anything from external instant booking for container services, B2B gateways with 3rd party partners, fleet management, and remote container management. Following ITIL model to manage incidents and support mission and business critical applications.
- DevOps **python** scripting use of **Github, GitBash** and **puppet frame work** to patch and release control environments and *automate* the management of **infrastructure as code**. Triaging production issues.

2014 April – 2018 Nov: International Travel and Professional Development.

- Went on a sabbatical year in East Africa.

2013 Aug – 2014 Apr: SOA suite Oracle apps Solutions Architect (contract), BordGaisEnergy Eireann, Cork.

The main supplier and distributor of pipeline natural gas in Ireland.

- Review of end to end solution as a solutions architect from design to prototyping and Install and upgrade app servers deploying solution based on Oracle SOA suite ESB, **fusion middleware**, weblogic and OHS in Linux environment supporting Company enterprise middleware.
- Writing custom Java code deployed on weblogic and performing SOA triaging, ESB, Mediator development..

2012 Sept – 2013 Aug: BSS, CRM and middleware Solutions Architect / support lead, NTT Data UK Ltd, London/Dublin.

A Japanese system integration company and a subsidiary of Nippon Telegraph and Telephone. Working as a support lead consultant at client site Meteor Mobile communications in Dublin.

- Responsible for **leading** a team of engineers and developers in OSS/BSS domain supporting about thirty applications including CRM systems and SOA middleware. Acting design authority devising product fixes and coordinate release to production and overseeing warranty period of fixes in production.
- Manage allocation of application defects across the team. Responsible for leading delivery of OAT test phase for projects and production fixes within agreed SLAs.
- Key CRM systems supported include, Meteor dealer system, admin portal hosting variety of enterprise application used for **inventory and order management applications build on top of Oracle weblogic and service bus** with SSO capability, **SOAP API based** SOA middleware and Meteor self care portal.

Key Achievements

- Delivered critical change request affecting 3rd party partners providing post pay billing managed service used for corporate and government subscribers. Overcame challenges due to unclear support processes.
- Identified process gaps and addressed with 3rd party partner ensuring timely delivery of the CR.
- Delivered proactive value add initiatives to the business optimizing all CRM database applications improving their utilization of shared Oracle DB RAC infrastructure this lead to reduction in DB incidents.

2007 April – Oct 2010: OSS and BSS Solutions Architect (contract), Meteor Mobile Communications Ltd, Dublin.

An Irish GSM and UMTS mobile telecommunications company, operating a GSM/GPRS/EDGE/UMTS (HSPA+) cellular communications network – a subsidiary of Eircom (Irish telecoms network)

- Working with IT development team on a programme to completely replace the existing customer billing and provisioning system with an Oracle apps SOA suite integrated OSS/BSS system based on Intec SingleView – a complex strategic project running over 3.5 years, with a budget of over €25M.
- Delivered solution design HLD, LLD, UML OSS/BSS billing mediation and Core network 3GPP integration.
- Lead designer and creator of infrastructure end state architecture creating virtual servers, networking, designing security into solution with the use of firewalls between web, app server and database tier. Implemented creation of solution installing weblogic and oracle service bus. Created multiple environments including, dev, test and pre-production working with an offshore development partners (NTT Data), an in house software dev teams and 3rd party vendors..
- Hands on experience working with a range of technologies: Oracle SOA enterprise service bus, web logic, JBOSS, apache tom cat, Java and J2EE, service registry and subversion.

Key Achievements

- Played a key part in the successful launch of the OSS/BSS solution – developed extensive knowledge of the deployment of SOA for OSS/BSS domain and delivering a future proof, resilient solution.
- Overcame critical technical issues at integration stage, troubling shooting HA hardware load balanced solution designed for cross site resilience for SOA. TCP and comms
- Contribution to the successful deployment of Oracle SOA in meteor for the new billing and CRM system meeting functional and performance requirement overcoming a host of performance and functional issues.

Aug 2004 – Apr 2007: Design Engineer, Vodafone UK, Newbury, Berkshire.

A global telecommunications company with headquarters in Newbury; the world's second largest mobile telecommunications company, with 625M subscribers, operating in over 65 countries

- Designed solutions within the mobile application and content services team, working on multiple projects with internal teams and the firm's operating companies in Italy and Germany.
- Worked on key projects, including:

Next Generation Unified Messaging Systems - unified advanced voicemail, email and SMS.

- Worked with technical teams across 4 countries following a single procurement process to agree on a core solution common to all operating companies minimising local customisation as much as possible to reduce total cost of owner to Vodafone as a whole and leverage global presence.
- Delivered RFI/RFP process with procurement manager. HLD, LLD, UML standard design and Zachman framework.

Mobile Push Email

- Delivered network management technical requirements spec of end to end solution including new SOA Tibco capability, using SNMP, Tibco Hawk and HP Open view.

Enterprise Device Agnostic Mobile Push Email

- Product owner, triaging production issues managing Vendor with product road map and planning releases.

Key Achievements

- Helped to establish the Vodafone UK design team as the lead operator for the 'voicemail replacement project', sharing experience with other operators across different countries.
- Successfully introduced Tibco SOA web service capability in telecom system domain providing a strategic solution to expose a number of backends as a web services and thus reducing cost and integration effort for future projects.

Mar – Aug 2004: Commercial Pricing & Strategy Analyst, Vodafone UK, Newbury Berkshire.

- Input into commercial committee papers, creating modelling tools used to support business decision-making on changes to mobile products and tariffs.
- Delivered a pre-paid modeling tool using SAS and advanced Excel skills to a very demanding timescale.
- Worked with analysis and query of large data sets using SAS programming, SQL and business objects.

Oct 2003– Mar 2004: Technical Project Manager, Vodafone UK, Newbury Berkshire.

- Managed a portfolio of projects within the Vodafone Live! Programme.
- Facilitated and managed a high impact project Vodafone Live! streaming – engaged key stake holders to raise priority of project including senior managers within telecom domain.
- Worked with Vodafone's implementation of PRINCE2 methodology providing weekly RAG status reports, and manage deliverables at each project gate including technical options paper, HLD and LLD.

Apr – Sept 2003: Billing & Provisioning Business Analyst, Vodafone UK, Newbury Berkshire.

Sep 2002 – Mar 2003: Software Developer, Vodafone UK, Newbury Berkshire.

Aug1999 – Sep 2000: Systems Engineer Nortel Network, Harlow Essex

- UMTS RAN Systems engineer working with base station controllers and BTS and RF performance network attachments of UE SNR RSSI monitoring cell planning and handover between cells. Integration with MSC and media gateway integration with HLR.