COLIN SMITH

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Influential and respected consultant with a sustained record of achievement in the fixed and mobile communications market place. International experience delivering end-to-end solutions across multi-national organizations. An inspirational leader, strategic visionary and team player, with a collaborative approach to developing robust strategies for translating vision into achievements. Strong analytical, problem solving and decision-making skills with a passion for service quality and delivery.

KEY WORDS

FNG, FNS, MME; S-GW, P-GW; SS7, SIGTRAN; SIP, SIP-I; OSS (NETCONF, YANG); GSM/UMTS/LTE/5G Migration, VoLTE; MMTEL; Security (5G SCAS, NESAS); Video and Voice over IP (VVoIP), Policy Control; QoS; Megaco (H248); ATM (AAL2, AAL5), LDAP, Radius, Diameter, WAN/LAN; PRINCE2, Agile; Pre-Sales and Sales Communication; Global; Cloud (AWS, Lamda, Docker, Kubernetes, F5, BlockChain); Big Data (Hadoop); SDN; NFV; ININ (Genesys); Wi-Fi; OSS, SNMPv2; SME; Negotiation, Team Building; Project Management, Excel; PowerPoint; Word.

VENDOR EXPERIENCE

Nokia: Good level of experience (NED) – 3G PS/CS, 4G CMG, OSS, Provisioning and CDR generation

E///: Good level of experience (ALEX) – 2G/3G/4G PS/CS/ LP-GSM, OSS (NETCONF), Provisioning and CDR generation

Huawei: Fair level of experience – 4G PS

NEC: Good level of experience – 3G PS Provisioning, Network Planning, Orchestration, Inventory Management Change Management and CDR generation

Nortel: Good level of experience – 2G PS/CS

Cisco: Good level of experience – Data Center routing and switching, OSS (NETCONF)

CMG: Good level of experience – Unified Communication Services

Telcordia/IBM: Good level of experience – Advanced Intelligent Network and Service Creation Services

Evolved-Intelligence: Good level of experience – Advanced Roaming Services

SYREI AB: Good level of experience – IMS Application Server development

Ortiva: Good level of experience – Video and the optimization of Video

Amazon: Good level of experience as an AWS Solutions Architect and associated DevOPs service and Security products

KEY SKILLS

* **Customer Relationship Building:** Openand willing to adopt new ideas and concepts**,** Requirements driven; Strong Negotiation skills; Benefit-orientated; Delivery focused; Customer Satisfaction driven.
* **Communication:** Strong communication and commercial skills that translate complex project and technical topics into clear business strategies and solutions, combined with the leadership and project/programme management skills to follow through on delivery. PreSales and Post-Sale.
* **Technical:** End-to-end process and solution design; SME and System Integrater across complex solutions and involving 3rd Parties; detailed understanding of radio technologies, access protocols; network protocols, mobile network, IMS, messaging and VAS architectures; Application development in high transaction and globally distributed environments (Cloud, NFV/SDN); Securing WCDMA, WiMAX, WLAN, Telemetry, M2M, GSM 4G (Diameter), GSM 5GC (HTTPS), 5GS (HTTPS) and 5QI GPRS and Mobile Data (GPRS, EDGE & EPC), GPRS; 4G EPC; 5G NGN; VoLTE; MMTEL; Video, Policy; QoS; Unified Messaging, DPI, Video optimization, IN and CAMEL Services, Location Services, SRVCC, VoLTE, MMTEL, NGN, VoIP/SIP, MPLS WAN, Security; OSS/BSS; Service and Network Performance Management and Optimization; OSS, BSS, Wi-Fi offload, Business Intelligence, Emergency (911) Services and Lawful Interception; Big Data (NoSQL), ZigBee. Network Security (ISO27K). Acceptance testing using a number of tools according to the protocol of technology and providing detailed reports on the outcome of those tests.
* **Operations and Logistics:** Feasibility studies and business case development; Experienced Project and Program (Agile, PRINCE2) management of £1-£14 million programs; Supplier, RFQ and contract management; Managed Services delivery and receipt; Quality focused and implementation of best practices; SLA and KPI development.
* **Analytical**: In-depth data and trend analysis; Network economics, performance and network capacity planning; Business process engineering. Meaningful presentation of results.
* **People Management:** Communication at all levels; Matrix management of multi-disciplinary and international teams; Line management; Motivation; Knowledge sharing; Conflict Management; Building trust and encouraging risk management; Management of off-shore teams and consultancy agencies.
* **Business Development:** Alignment with or development of business processes; Change management, Understanding of business needs and drivers. Business process to system architecture mapping.

PROFESSIONAL CAREER

**Implementation Manager, STEELHAWK Limited – 1996 - Present**

As an Implementation Manager, I have been working alongside Tier-1, Tier-2 and MVNO Telecommunication companies and Service Providers delivering technical, product, operational and program management expertise over a broad range of projects and programs, which include:

**4G/5G Core Network Security Evolved Intelligence July 2018 – December 2018**

As the SME I was tasked with identifying security signaling network integrity flaws that may compromise a network operator’s service or an individual, or group of individuals service offerings. I wrote three detailed reports on Diameter, CAP and MAP highlighting how attackers masquerading as legitimate roaming partners may exploit weaknesses based on trust between the roaming networks.

**5G Core Network Architect UKBB Jan 2018 – June 2018**

As the SME I was instructed to apply my experience on a detailed assessment of the impact that 5G Core Networks may have on the existing ePC (developing a migration strategy from 4G to 5G), RAN so far as the N1 and N2 interfaces are concerned, OSS, network planning and dimensioning, upstream provisioning and billing systems. This is a distributed Cloud-based application, where SDN was used of chain the RAN to the Core and all Core Network components were encapsulated within a NFV container and I achieved identification of key areas that had been over looked in the initial assessment.

**Senior Solutions Architect TrilogyLTE June 2017 – August 2017**

A US startup, TrilogyLTE was involved in the development of a metro-VoWi-Fi solution, fully integrated with the existing 3G/4G services provided by the incumbent operators. Acting as the SME my responsibilities included developing the core network design (including Diameter interconnect), designs for charging and mediation and provisioning.

**Senior Solutions Architect Cirrus October 2016 – December 2016**

A UK-US startup, Cirrus was tasked with developing a Proof-of-Concept Policy Control Function (PCRF). My responsibility was to define the scope for the PoC of the SDI-Rx interface, the PCRF engine and the PCRF-Gx interface. Acting as the SME I achieved this with a well-documented design on time that was well received by the Client and the end Customer.

**Senior Solutions Architect VOO July 2016 – October 2016**

At VOO I was acting as a senior Technical Architect (SME). I achieved the development of a strategy for migrating the mobile business from a thin MVNO model to that of a full (thick) MVNO. This achievement involved vendor analysis, Business case development, HLA/HLD development for the CS, ePC, IMS and detailed working with the IT team on the OSS/BSS development and extension to the related business processes.

**Senior Solutions Architect EE October 2015 – December 2015**

As the SME I was responsible for the high-level design and Systems Integrator for Voice Mail migration program that avoided any change to the customer experience and ensured that the customer would not need to re-enter any data and would not lose any saved or un-read messages. I achieved this mandate on time and to budget with no impact on the existing Customer base.

I was also responsible for the HLD/LLD for a monitoring solution serving a major MVNO. This included monitoring the customer experience for CS Voice, VoIP, Mobile Data, Real-Time Charging, Messaging (MMS and SMS). I worked closely with the internal teams and the 3rd Party supplier to provide a gap analysis against the existing OSS system capability and what was required to meet the new requirements.

**CTO SYREI Systems Ltd November 2014 – October 2015**

As CTO of this start-up operation I was responsible for the high and low level design and development of an IMS Application Server (AS) that provided:

* VoLTE
* VoWiFi
* VoHSPA
* SR-VCC
* Full MMTEL service support

The platform is fully standards based according to 3GPP, IETF, OMA and GSMA recommendations. The AS was implemented as a Cloud solution in Sweden, accessed by the US, UK, Italy and Hong Kong. SDN/NFV was used to distribute resources and I achieved a secure solution through the implementation of “Network Slicing” to ensure that each operator or service provider only had views on the resources allocated to them. As the technical lead, I played a key role in the Pre-Sale of the system to operators and service providers in the US and Europe.

**Test and Project Manager – Jersey Telecom Sept 2015**

Working on a major network transformation programme migrating PRI and BRI circuits to SIP Trunk I was responsible as the SME for establishing the Test and Program plan for implementing the design.

* SBC Installation and Configuration
* IOT Testing
* Acceptance Test Planning
* Overall Project Management across multiple teams – matrix management

Working with the JT teams I achieved a managed a smooth migration and identified and articulated certain losses of functionality incumbent in the migration, ensuring all parties expectations were set.

**Core Network Architect – Coyote Systems Group July 2015 – August 2015**

Working for a small start-up service provider in the US, I was responsible for assisting their clients (small to medium sized operators) migrate their networks to a more efficient Diameter signaling platform. This involved performing the role of SME presenting proposed solutions to the client, gaining buy-in and then achieving the implementing the solution upon their existing E/// EPC, according to an agreed project plan.

**MVNO Core Network Architect – Virgin Media October 2012 – July 2015**

I was responsible for and achieved the design and development of the mobile core network for a leading media company that wishes to enter the market as a “thick” MVNO. As the SME, I led and delivered to the project, working across a number of cross-functional technical teams to achieve the delivery of:

* End-to-End Core Network Solution Design – CS, ePC and IMS
* IP/MPLS transmission network and interconnect to the MVNO Core Network
* IP CN build - Citrix NetScaler Load Balancer (HA) configuration and test, CISCO 4500 configuration and test, Cisco 2600 configuration and test et al
* SS7 SIGTRAN network and related core network and VAS components.
* Interconnect arrangements with the host Mobile Network Operator
* Roaming interconnect arrangements with Roaming Service Providers
* VoWiFi and WiFi Offload
* Messaging – MMS; SMS on-net; SMS interconnect and SMS brokering with 3rd parties
* OSS/BSS development

I also actively liaised with the IT project teams to ensure provisioning; real-time charging aspects and fraud management were aligned with the Core Network developments.

**Video Optimization Architect – 3UK November 2010 – October 2012**

As part of the RAN uplift programme, I lead the technical and commercial evaluation of video optimization techniques for Mobile Broadband services. Through the judicious use of such technology I achieved RAN savings of between 8% and 12%. The project involved:

* Developed an RFP and evaluated vendor responses based upon a detailed set of criteria
* Defined the solution design for integration of the video optimization server within the 3UK mobile internet architecture and operational systems
* Managed L2 integration with the 3rd Party Procera DPI product, developed filtering and shaping rules for transparent handling of video optimizable traffic.
* A live service trial that produced detailed RAN, Core PS and MIG analytics highlighting the benefits gained.
* Deployment of the system in production, providing yield management savings.

**MVNO Core Network Architect – Sky Mobile July 2010 – November 2010**

Reporting to the Director, Mobile Services – I achieved the development of a concept-to-launch strategy for a converged fixed-mobile MVNO market entry:

* Defined the core target architecture and delivered a comprehensive gap analysis on the existing billing, interconnect, operations and CRM capabilities
* Established target organizational structure.
* Develop high-level designs for the service management, OSS/BSS and general network operations, interconnect, billing and core network for the MVNO.
* Development of a board-level proposition for network investment – very well received.

**Mobile Core Implementation Manager – C&W, UK Jan 2010 - May 2010**

C&W, at that time, was a major provider of converged Telecommunication services to the UK business community. Invited back to take responsibility for design and commissioning of a geographically redundant Low-Power GSM network as the SME I achieved the following:

* The Development and documentation of a detailed high and low-level technical design for the largest UK in-building GSM radio coverage program, (LP GSM RAN, Circuit and Packet Switched Core Network, Messaging – SMS & MSS; OSS/BSS system integration).
* Leadership of a project involving multi-disciplinary teams that delivered cross-programme results
* Worked with the off-shore team to analyze and develop a Mobile Billing application that satisfied the end Customers complex requirements and ensured flexibility to be re-used for other Customers
* Fulfillment of key SLA criteria, which avoided contract penalties of several millions of pounds.

**Solutions Architect, Tatara Systems November 2009 – January 2010**

Tatara Systems Inc. is a US-based software development house with products tailored for the Telecommunication industry. Responsible for the detailed solution design for a SIP-based application that provided voice and data services in a Femto-cell environment. In achieving the aims of the project, I led a remote, multi-disciplinary team that:

* Developed an innovative solution design for an RFC 3261 SIP-based application. The project worked to a very tight timescale and budget and required a high degree of knowledge transfer and acquisition.
* Conducted preliminary trials of the solution with Tier-1 operators in the US. The solution design also promoted a strong partnership with a European Femto-cell supplier that promoted a European launch.

**Senior Architect and SME – Vodafone Group July 2009 – November 2009**

Vodafone is one of the major mobile network operators in the UK, Reporting to the Manager, Service Connectivity I was responsible for implementing a centralized hosted services strategy. In achieving the aims of the project I performed the following tasks:

* Led a project with 12 regional operators to determine service, volume and WAN (MPLS) connectivity requirements.
* Led a project with group and local security teams to establish secure connectivity and site security policies for billing and other sensitive applications.
* Provided a detailed end-to-end design of an intelligent, application-aware load balancer policy control and access function to optimize radio resource utilization.

**Mobile Core Network Manager – C&W, UK September 2008 – July 2009**

C&W, as a major provider of converged Telecommunication services to the UK business community, had purchased a license to operate a Low Power GSM network and develop a converged service solution for in-building coverage. I was responsible for directing the end-to-end development of an E/// Lower Power GSM mobile R4 solution – initial deployment. To achieve the aims of the project as the SME I performed the following tasks:

* Negotiation for a redefinition of the terms of change management which unclogged the CM process and allowed the project to regain pace whilst saving £250k in additional fees by bringing the design control in house and supporting the team in the fulfillment of that activity.
* Project managed a multi-disciplinary team and worked positively with the supplier to deliver a £12 million program and commence live service operation on time, securing the revenue stream.
* Developed and documented a detailed architectural and low-level design for the RAN, Core and Packet switched network
* Developed a network economic model and identified key performance indicators for GSM radio and network performance monitoring

**Implementation Manager – Evolved-Intelligence, UK Jan 2008 – Sept 2008**

For this start-up enterprise delivering NGN applications upon a JAIN v1.1 application server, I was responsible for and achieved the specification of a suite of roaming and remote radio performance monitoring applications, Pre and Post Sales and managing the systems integration of the solution into several customer networks.

* Pre-sales activity – including Project Management of the solution delivery
* Responsible for development of the Low-Level Application Design
* Managed the implementation and handing over the solution to live operation and securing full payment on schedule.
* Developing a Quality Process that aligned with the in-house Agile development cycle
* Mentored the software development team responsible for developing the SS7 MAP-USER applications

**Senior Solutions Architect, IMS Design – NEC UK Nov 2006 – Jan 2008**

I was responsible for and achieved the commercial and technical development of the NEC European core network strategy for EPC and IP Multimedia Systems (IMS) combined with WiMAX/Wi-Fi/Femto-cell access solutions.

* Developing 3G/4G radio access and GPRS/EPC solutions tailored to specific customer requirements
* Business case development with complex ROI, TCO and business benefit analysis
* Leading a number of cross-functional teams and multiple suppliers in Europe, the US and Japan to develop and enhance the NEC IMS product
* Developed and documented a detailed product design and supporting business process
* Provided pre-sales support on the multi-million pound bid process

**Implementation Manager – FT-Orange Group Oct 2003 – Nov 2006**

Reporting to the Director, Service Platforms I was responsible for leading the implementation of a centralized, next generation (Parley), intelligent services platform across the FT-Orange Group. My achievement resulted in the delivery of one of the most stable platforms in the FT network in which I performed the following tasks:

* Established the PMO and aligned with the internal program delivery process
* Developed the business case with a CAPEX of EUR 16.7 Million approved
* Led the supplier selection process and subsequent commercial negotiations
* Project managed the deployment and acceptance testing of a centralized Parley-based solution across multiple countries.
* Developed the solution architecture for a VoIP V-PBX application and led an acceptance test strategy – a cross-functional, multi-disciplined program involving fixed and mobile operations across 7 European countries to deliver the solution on schedule.
* Solution optimized to reduce in-country capacity requirements and license costs

**Messaging and VAS Solution Architect – 3 UK Aug 2001 – September 2003**

Reporting to the Director, core network design and to achieve the critical aims of the projects I led a large team of people responsible for the design, development and implementation of a range of value-added systems including unified messaging systems (Voice/Video Mail, SMS, MMS, Web Mail), LBS systems, OSA Parlay gateways and H.324m – SIP video gateways.

* AS the SME I led the design team from site planning, installation, acceptance testing and handover to operations.
* Responsible for managing multiple 3rd Parties involved in the end-to-end solution.
* Successfully integrated the above systems to the enterprise architecture
* Optimized the solution to meet performance and capacity requirements
* Participated in the successful launch of service on 03-03-03.

**Chief Mobile Network Architect – BASE Aug 1998 – Aug 2001**

I achieved through leading a team of people responsible for the design, development and implementation of a new DCS1800 network.

* Acting as the SME, I led the design team from RFP/RFQ, HLD, LLD, site planning and acquisition, installation, acceptance testing and handover to operations of the full mobile core network, including CS Core, Mobile Packet Core, Messaging (SMS) and Voice Mail.
* Successfully integrated the core network systems to the enterprise architecture – Provisioning, Billing, Revenue Assurance and Pre-Paid Voucher Management
* Specified and developed a Real-Time Charging Application that led the market for years after I left
* Optimized the solution to meet performance and capacity requirements
* I achieved the successfully launched service on 27-03-99 – nine months after being awarded the license to operate.

**IN and LNP Architect - oTELo, Germany Dec 1996 – Jul 1998**

As the SME, I led a large team of people responsible for the design, development and implementation of a new fixed network and service proposition in Germany.

* Led the design team from RFP/RFQ, HLD, LLD, site planning, installation, acceptance testing and handover to operations.
* Led the team from a project and technical perspective
* Managed the relationship with the chosen supplier.
* Achieved delivery on time and within budget – despite a change in a major 3rd Party supplier

**Fixed-Mobile Integration Architect - Nortel Sept 1996 - Dec 1996**

I was responsible for the pre-sales and technical project management for a major IN and VAS project. In the performance of my responsibilities I achieved the following:.

* Led the design team that together produced the HLD, LLD in response to the Customers RFP/RFQ,
* Managed the delivery of the technical proposal

**IN and Data Networks Architect, Mercury Communications Ltd. 1994 – 1996**

I led a large team of people responsible for the design, development and implementation of a new IN and service proposition for Mercury.

* Led the design team from RFP/RFQ, HLD, LLD, site planning, installation, acceptance testing and finally achieving handover to operations on time and within budget.
* Multi-vendor solution requiring relationship development with US and UK suppliers
* Achieved the delivery of the first IN implementation to European Standards
* Achieved the first integration between the Core Network and a Genesys Call Centre, enhancing the ININ CCaaS interactive VoIP proposition

**Technical Manager – IN and GSM Standards Engineer, BT 1990 – 1994**

As a international standards engineer, I worked on developing the following standards;

* GSM Phase 1
* Intelligent Networks – Capability Set 1

**1987 - 1990 University of Salford – Reading Electronic Communications**

**1979 – 1987 Royal Air Force – Flight Systems Technician**

Qualifications

B-Eng 2.1 Electronic Communications

Prince2 certified

Personal

Interests: Off-road driving; Sports diving; Tinkering with cars; Medieval History; Quantum Mechanics; Current affairs.