
CURRICULUM VITAE

THULANI NDLOVU

Position: Data Engineer / Data Architect / Senior Manager BI Architecture / Advanced Big data Analytics & Infrastructure Integration Architect

Availability: 1 Month Notice

July 2020

Contact Details:

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Introduction by MTN SA COO to MTN SA Role:

Please join me in welcoming the first member of the MTN SA **Business Intelligence Competency Centre (BICC)**. This team commences with their new roles today and will be engaging with you shortly. These sessions will serve as a means of aligning with you on your requirements and expectations, while also sharing their strategies and plans.

With that being said, I am pleased to introduce you to the new appointees:

Thulani Ndlovu (Senior Manager: Big Data Architecture)

Thulani joins us from the Digital team where he was a Lead Solutions Architect for Emerging and Big Data platforms. He holds an MSc in Computer Science from the University of Pretoria, a BSc Hons in Computer Science and a BSc Software Engineering from University of South Africa (UNISA). Before joining MTN, Thulani worked as an Integration Architect and Technology Consultant at various banks, MVNOs and retailers for the past 10 years.

Thulani will be responsible for shaping our Big Data environment and support the utilisation and monetisation of our existing Big Data platforms (DaaS and CEM). He will be the primary interface between Information System (IS) and the Commercial and Finance business units in ensuring that we have the right data within the right technical environment in order to support our future business needs.



Key Responsibilities and Competencies: Architects Big data infrastructure for Big Data environments to enable predictive modelling and other advance analytics methods that help organisations do advanced analytics to realise

business value from their Data assets while retaining a balance of value against utility in the now tightly regulated environment e.g., PII (Personal identifiable information) and POPI compliance using advanced Data Science techniques such as PPDM Privacy Preservation in Data Mining).

Enable Real-time analytics such as Real-time targeted marketing to MTN's customers for example MoMo (Mobile Money).

A Data & Infrastructure Architect, responsible to drive the data and data infrastructure agenda within the company by providing data, integration & infrastructure architectural and strategic consulting services with data architecture principles and best practices. The data & infrastructure architect defines the data architectural landscape of the company and in consultation with business, design and implement solutions that facilitate the execution of the company's strategy. Designing data architecture, integration architecture and technology infrastructure that effectively support data-and-analytics activities at scale to implement an end-to-end digital data architecture by designing flexible data management architecture, and create a roadmap for implementation.

End-to-End vision, and to see how a logical design will translate into one or more physical data designs and how the data will flow through the successive stages involved. The architect will need to be able to address issues of Data Migration (Validation, Clean-up and Mapping), and will need to understand the importance of Data Dictionaries. Very technically sound with data and infrastructure components in a Big data environment. Developed a data and infrastructure architecture landscape, framework and blueprint for the company to support the execution of the pre-defined strategy. Implement Data and Infrastructure Architecture best practices. Understand how the data will flow through the successive architectures involved and address issues of information quality and standards (e.g. Validation, Clean-up and Mapping) Design, implement and manage the data architecture components including Meta Data

Management, Master Data Management etc. Oversee the design, development, implementation and maintenance of the data architecture. Act as the in-house expert and authority driving innovative management and business intelligence designs. Initiate overall plans to initiate and pursue continuous data and information quality improvements. Promote / Democratise data and information sharing, consistency and reuse across the company and manages reviews of data quality deliverables of all phases and enhancements. Collaborate with business units and data owners to successfully implement and maintain an enterprise level business analytics and data warehousing and analytical solution. Identify and promote best practices for data and information modelling within business areas and provide oversight for all activities related to data cleansing, data quality and data consolidation using industry standard data modelling methods and processes. Ensure that operational and analytical data warehouses are able to support all business requirements for business reporting across the Company Group Display the demonstrated ability in communicating the overall customer data and information architectures to both technical and business constituencies ensuring alignment and understanding of these. Oversee and monitor all frameworks to manage data across organization. Design and provide support to all data management methodologies according to required standards. Monitor and identify appropriate equipment, tools

and systems to achieve all data technology goals. Administer mapping of all data sources and movement and analyse it to ensure appropriate quality of all data. Coordinate with project supervisors and business heads and manages all projects regarding enterprise data.

Manage various data associate problems such as system configuration and integration on multiple platforms. Provide training to manage various data and ensure enhancement in staff working. Develop key metrics for tests on data and ensure integrity of same on data architecture. Prepare documents for data architecture and maintain knowledge on large data structure as well. Design annual technology business plans. Collaborate with new and existing external vendors and provide support to all objectives and assist to create various data architecture.

Analyse information flow and recommend appropriate technologies to provide support to all business processes.

Brief working history and Core Skills

- A Big Data Engineer / data integration architect with extensive experience in building and designing large scale software systems in the ever-changing technology landscape. Data warehousing, Data architecture, Statistical data modelling and distributed computing. Expert knowledge in integrating data from disparate sources and expert builder of Big data lakes for Real-time and Batch analytics.
- Provide expert knowledge and experience of various methods and technologies for Big Data integration.
- Data Science / Advanced Analytics (Machine learning and Deep Learning) competency centre setup and leadership.
- Data Science, Project initiation, budgets, resourcing and Capex/Opex management.
- Responsible for research, innovation and providing architecture and Big Data Science leadership and strategy for the integration, middleware, monitoring, and application domains. Created project implementation designs against corporate standards and verified implementation meets the corporate architecture standards. Building relationships with stakeholders and Exco presentations on Strategies and New Technologies.
- Designed and implemented the transformed integration Architecture for the South African based on IBM IIB (WebSphere).
- Successful leadership, design, and implementation of the integration architecture for MVNOs, e.g. FNB Connect, Mr Price Mobile, Virgin Mobile (MVNOs) for Cellc.
- Lead architect in the Integration of Clicks (MVNO) at MTN and Big Data & IoT Initiatives.
- Provided technical expertise in developing and executing solutions to support business opportunities, acting as the lead in troubleshooting said initiatives.
- Designed, developed, and validated solution prototypes in a variety of lab environments as well as certified the accuracy and viability of designs and implementations.
- Trained, motivated, and mentored both internal and external personnel to be efficient in meeting and exceeding organizational objectives.
- Responsible for planning and developing project scope and project management guidelines, and ensuring successful team completion of each deliverable.
- Lead MTN SA Enterprise Integration Architecture team at MTN serving as a Senior Technical/Lead Integration Architect and one of the principle Domain subject matter experts. Lead the design and proof of concept: Big Data as a Service. (Big Data Analytics, Discovery and Data Management) efforts to support the implementation of a new strategic integration architecture premised on the J2EE and SOA platform architectures.

- Multichannel integration lead architect and Portal strategies. Specialist in micro-services, API led connectivity and Digitalisation.
- Cloudera inc Big Data stack set up and proof of Value.
- Expert knowledge of IoT//IIoT core principles and implementation models (m2m communication, LoRa, SigFox, BLE, etc.).
- Expert knowledge in the architecture and implementation of IoT and Analytics (including “smart cities, smart farming, smart mining, smart health and manufacturing” / Industry 4.0 (aka 4IR, connected consumer products, etc.).
- Fulfilling the role of Chief Technology Innovator within the organisation.
- Integral contributor to the shaping of MTN Group enterprise strategy.
- Facilitate a culture and system of innovation throughout MTN.
- Synthesizes the insights and modelling from data science with the emerging capability that technology provides to imagine, conceptualize and shape a data driven enterprise - the smart modern Data driven Telco.
- Advise on the interface between innovation and the rest of MTN to ensure seamless on boarding of new innovative/disruptive business solutions e.g, IoT.
- Advanced technology disrupter.
- Relentlessly resourceful and creative problem solver
- Fails forward, and high learning orientation
- Keep abreast of and document current research in the area of data engineering and data architecture, for the benefit of business sustainability and alignment to best practice standards.
- Assist with research on development and trends: Data Management and Advanced Analytics.
- Compare current data management practices to industry best practice as well as external market trends. Identify any existing gaps between the two and ensure that this is well communicated to business.
- Implement best practice related to data models: Data Management and Advanced Analytics to ensure ongoing business improvement.

QUALIFICATIONS

| QUALIFICATION | INSTITUTION | YEAR |
|---|---|---|
| Master of Science (M.Sc.), Computer Science | <u>University of South Africa. Student No: 3320-709-7</u> Research area: Towards a Big-Data-Specific Business Intelligence and ADVANCED Analytics Integrated Architecture Framework in Telco Cyber-Physical and Mechatronic Sphere: A South African Perspective | 2019 - 2020 |
| Bachelor of Science (BSc) (Honours), Computer Science & Information Technology | <u>UNISA. Student No: 3320-709-7</u> <u>Subjects:</u> <u>HPCOS81</u> Threat modelling for an online transactions system Research Report. <u>INF4883</u> Enterprise Architecture: <u>INF4825</u> Software Project Management: | 2013-2014 Average: <u>71%</u> 69% 82% - Passed with Distinction |

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| | <p>INF4820 Human-Computer Interaction: Universal Usability – Designing computer Interfaces.</p> <p>INF4817 Software Engineering: Object – Oriented and Classical Software Engineering.</p> <p>INF4831 Information Security: Security in Computing.</p> <p>INF4860 E-Learning:</p> <p>HPCOS82 Building the Multilingual Semantic Web with Linked Open Data in the South African Languages: Research Document (In conjunction with Stats SA):</p> | <p>86% - Passed with Distinction</p> <p>61%</p> <p>63%</p> <p>64%</p> <p>69%</p> <p>71%</p> |
| Bachelor of Science (BSc), Software Engineering | UNISA. Student No: 3320-709-7 | 2007 - 2011. Degree Average: 60% |
| Togaf 9.1 level 1 & 2 | <u>Open Group</u> | 2017 |
| Bachelor of Science (BSc) Degree: Physics & Statistics | UZ Statistics 101: (Probability Theory & Statistical Analysis) Statistics 102: (Regression Analysis) Statistics 101: (Calculus) Statistics 101: (linear Algebra) Physics 101: (Mechanics) Physics 101: (Electronics / Electricity & Magnetism) Physics 101: (Nuclear Physics) Physics 101: (Solid state Physics & Thermodynamics) | 1993 Average Mark 3 2.2 3 2.2 3 3 2.2 2.2 |
| High School Education | Matric Certificate <u>Subjects:</u> Mathematics (A) Science (A) Geography (B) | 1985 - 1992 |

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| | English (B) Accounts (C) History (C) | |
| TCP/IP Fundamentals | Verhoef | 2009 |
| Certificate in REXX Programming | Verhoef | 2008 |
| Certificate in Assembler Programming | Verhoef | 2007 |
| ITUC Diploma in Cobol Programming | TDF | 1997 |

B.Sc. Software Engineering:

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| CEM101A | END-USER COMPUTING | 89 | Passed with Distinction |
| COS101S | THEORETICAL COMPUTER SCIENCE 1 | 68 | Passed |
| COS113W | COMP SYST: FUNDAMENTAL CONCEPTS | 75 | Passed with Distinction |
| CSS101H | COMPREHEN SKILLS FOR SCIENCE | 85 | Passed with Distinction |
| INF1059 | INTRO TO BUS INFORM SYSTEMS | 52 | Passed |
| INF1208 | HUMAN-COMPUTER INTERACTION I | 66 | Passed |
| STS1055 | BASIC STATISTICS | 51 | Passed |
| COS111U | INTRODUCTION TO PROGRAMMING 1 C++ | 76 | Passed with Distinction |
| INF1511 | VISUAL PROGRAMMING 1 DELPHI | 75 | Passed with Distinction |
| INF206D | SYST ANALYS & DESIGN METHODS | 58 | Passed |
| INS101U | INTRODUC INFORMATION SCIENCE | 64 | Passed |
| MAT111N | PRECALCULUS MATHS B | 52 | Passed |
| PLS102Y | CRITICAL REASONING | 72 | Passed |
| COS112V | INTRODUCT TO PROGRAMMING 2 C++ | 78 | Passed with Distinction |
| COS2269 | COMPUTER NETWORKS I | 57 | Passed |
| COS261C | FORMAL LOGIC 2 | 52 | Passed |
| ICT2622 | OBJECT-ORIENTED ANALYSIS | 58 | Passed |
| INF303D | PRINCIPLES OF DATABASES | 70 | Passed |
| INF305F | ADVANCED SYSTEMS DEVELOPMENT | 64 | Passed |
| INF308J | SOFTWARE PROJECT MANAGEMENT | 76 | Passed with Distinction |
| COS2601 | THEORETIC COMPUTER SCIENCE 2 | 55 | Passed |
| COS2611 | PROGRAMMING: DATA STRUCTURES | 67 | Passed |
| COS2614 | PROGRAMMING: CONTEMPORARY CONCEPTS C++/QT4 | 65 | Passed |
| COS3761 | FORMAL LOGIC 3 | 50 | Passed |
| COS3751 | ARTIFICIAL INTELLIGENCE | 61 | Passed |

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| COS3711 | ADVANCED PROGRAMMING C++/QT4 | 53 | Passed |
| COS3721 | OPERATING SYSTEMS AND ARCHITECTURE | 50 | Passed |
| COS3701 | THEORETIC COMPUTER SCIENCE 3 | 59 | Passed |

CAREER SUMMARY

| COMPANY | EMPLOYMENT DATES | POSITION |
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| South African Financial Intelligence Center (FIC). | March 2020 - Current | <p><u>Lead Big Data Architect (Data Engineering):</u></p> <ul style="list-style-type: none"> • Advanced Big Data Analytics enablement. • Big data Infrastructure, Application, Security and modern Data architecture set up for FIC. • Developed a conceptual Big data analytics, Governance, Security and Application Architecture with a vision of Advanced Analytics and BI Competency elevation of the entire organisation. • Build an advanced BI / analytics competency center for combating illicit money flows i.e. Anti-Money-Laundering and anti-Terrorist funding advance capabilities for the state entity. • Educating and Upskilling on modern Data integration and trends. |
| MTN | May 2016 – Dec 2017 & April 2018 – February - 2020 | <p>Senior Manager BI Architecture:</p> <p>Currently implementing Cloudera inc. Cloudera Data Flow, NiFi, Snowflake, SecuPi, Privitar (Data Privacy) Cloudera Kafka Distribution, Confluent Kafka Distribution, Spark, Hive etc.</p> |

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| | | <p>Enabling Real-Time integration between systems and disparate Data sources. Enabling Real-Time analytics capabilities to MTN, e.g., Targeted marketing, campaigns and predictive analytics for MTN MoMo (Mobile Money) customers</p> <ul style="list-style-type: none"> ○ MTN SA Big Data Lake and Advanced Analytics Architect. ○ Advanced Data Science startup for MTN using Cloudera Data Science Work bench (CDSW) on the merged Cloudera and Horton works platform. Confluent (Kafka Streams) ○ KSQL ○ Elastic Search ○ API and Microservices enablement group wide. ○ Devops start up for Digital. ○ Develop and implement the Big Data Governance Framework for MTN. ○ Mobile Money architecture including Real-Time target marketing using Stream analytics. ○ Lead and oversee any Data driven projects within BIG Data environment. ○ Consulting services on Big data, Analytics and or IoT technologies and best practises group wide. ○ Develop and maintain relationships with business stakeholders, e.g Regular Technology Strategy presentations and roadmaps to MTN EXCO. ○ Design and oversee implementation of end-to-end integrated systems. ○ Deliver architectural initiatives that drive revenue and improve efficiency in-line with business strategy: Omnichannel/Portal architecture/API management/microservices/devops/Big data analytics infrastructure/enablement. |
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| | | <ul style="list-style-type: none"> ○ Cultivate relationships with IT management. ○ Thought leadership and consulting on various new technologies ○ Maintain in-depth knowledge of the organization's technologies and architectures. ○ Develop and maintain current and planned state integration architecture blueprints. ○ Project Budgets: Capex/Opex and Project Resourcing. ○ Develop and maintain a future integration architectural road map for the enterprise. ○ Communicate/lecture integration architecture, plans, goals and strategies. ○ Gain organizational commitment for enterprise level integration architecture and infrastructure initiatives. ○ Provide integration architecture direction to Enterprise Architects, Business Architects and Solution Architects. ○ Develop architectural metrics and reports for the executive team, business and IT management. ○ Maintain in-depth knowledge of strategic business plans. ○ Develop and maintain current and future state business architecture. ○ Oversee the design and implementation of enterprise data and metadata structures. |
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| | | <ul style="list-style-type: none"> ○ Create a plan to integrate business systems and workflows in support of business strategy. ○ Develop and enforce best practices for master data management and integration. ○ Lead Integration Architect - (SME) ○ Big Data Analytics & reporting enablement. ○ Omnichannel enablement / MTN Portals consolidation. ○ Expert knowledge of API led connectivity microservices and Strategies, API management offerings e.g., APIGEE API/Layer 7 / (CA API)/ Akana API/Mulesoft/Software AG/IBM API/ micro services/ Python/R/Cloudera/Horton works/Apache Open source. ○ Research and Development. ○ IT Transformation / Digital and Advanced analytics strategies & implementation. ○ Initiate and deliver architectural programs that align IT with business strategy. ○ Initiate and deliver technology evaluations and recommendations. ○ Maintain in-depth knowledge of IT industry best practices, technologies, architectures and emerging technologies. ○ Provide architectural consulting to programs, projects and initiatives. ○ Support business and IT strategic planning. ○ Support product development teams. |
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| | | <ul style="list-style-type: none"> ○ Act as the focal point for enterprise architecture and IT standards. ○ Identify architectural risks and propose alternatives and solutions. ○ Lead and manage a team of enterprise & architects ○ ○ Lead and manage a team of senior business architects ○ Lead Integration architect MVNO / MVNE platform creation and MVNO(mobile virtual network operator) integration. ○ MTN IoT / M2M platform architecture / Big Data integration architecture/IBM Watson Cognitive Analytics / Tarmin / Horton works / Hadoop. Huawei FusionInsights / Ericsson Expert analytics, Huawei Customer experience management/ OBIEE/Tableau ○ Innovation Lead ○ Oracle Sales Cloud integration. ○ Oracle ESB (OSB) set up and migration from from Open ESB. ○ SaaS/IPaaS/SOA/IoT/M2M/Big Data integration architecture (SME) ○ Upskilling and Training of internal architects on legacy and latest technology trends and architecture, <i>e.g. API adoption strategies, architecture and management, Big Data and IoT technologies.</i> ○ Scikit, Numpy, R, Python. ○ Technical and thought leadership for end-to-end BSS/OSS enterprise architecture solutions, including integration with |
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| | | <p>partner/third party components</p> <ul style="list-style-type: none"> ○ Disruptive technology adoption strategy and EIA. ○ Big Data/Mobile/API led connectivity / MuleESB / Cloudhub / Jenkins / Gitlab / Maven / micro-services / DevOps / Thought leadership/Strategy consulting/adoption/implementation/integration architecture and upskilling of internal resources. management/Tibco/Oracle Weblogic/Oracle Service Bus (SB)/Oracle Data Integrator (ODI)/OBIEE (Oracle Business Intelligence EE)/Oracle Dataguard/ ○ Hadoop /NoSQL(MongoDB/ Hive/ HBase / CouchDB / Cassandra) / MapReduce/HDFS. ○ SOA / Hybrid Cloud Integration/adoption SME/Architect and consulting. ○ Rating and charging (OCS) & Billing requirements delivery on BSS. ○ Jira/OSS management/Aris ○ MVNO enablement / MVNE integration architecture and implementation: (Clicks / MVNE Integration Architecture and implementation: (CDRator for Billing and rating). IoT (Internet of Things) Regulatory compliance and adoption, i.e. Telemetry requirements) enterprise strategy, readiness and adoption: Semantic Web/M2M Integration SME/Architect. |
| <p>Telesure Insurance</p> | <p>December 2017 – May 2018</p> | <p>Chief Integration Architect</p> <ul style="list-style-type: none"> ○ Introduce Micro-services and API Management ○ Upskilling and Training of internal IT team on legacy modernisation and latest technology trends and architecture, e.g. <i>API adoption strategies, architecture and</i> |

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| | | <p><i>management, Big Data and IoT technologies.</i></p> <ul style="list-style-type: none"> ○ Technical and thought leadership for end-to-end Insurance architecture solutions, including integration with partner/third party components ○ Disruptive technology adoption strategies and Architecture. ○ Big Data/Mobile/APIs - POCs/Thought leadership/Strategy consulting/adoption/implementation/integration architecture and upskilling of internal resources. Expert knowledge of various API management offerings e.g., APIGEE API/Layer 7 / (CA API)/ Akana/ micro services/ API/Mulesoft/Software AG/IBM API management/Tibco/Oracle Weblogic/Oracle Service Bus(SB)/Oracle Data Integrator (ODI)/OBIEE(Oracle Business Intelligence EE)/Oracle Dataguard/Python/R ○ IBM IIB (ESB) and DB2 integration. ○ Hadoop/NoSQL (MongoDB/HBase/CouchDB/Cassandra)/MapReduce/HDFS. ○ SOA / Hybrid Cloud Integration/adoption |
| Cell C | October 2015 – April 2016 | <ul style="list-style-type: none"> ○ Chief Integration Architect - (SME) ○ Upskilling and Training of internal architects on legacy and latest technology trends and architecture, <i>e.g. API adoption strategies, architecture and management, Big Data and IoT technologies.</i> ○ Technical and thought leadership for end-to-end BSS/OSS enterprise architecture solutions, including integration with partner/third party components ○ Disruptive technology adoption strategies. |

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| | | <ul style="list-style-type: none"> ○ SaaS/IPaaS/SOA/IoT/ ○ Big Data/Mobile/APIs - POCs/Thought leadership/Strategy consulting/adoption/implementation/integration architecture and upskilling of internal resources. Expert knowledge of various API management offerings e.g., APIGEE API/Layer 7 / (CA API)/ Akana/ micro services/ API/Mulesoft/Software AG/IBM API management/Tibco/Oracle Weblogic/Oracle Service Bus(SB)/Oracle Data Integrator (ODI)/OBIEE(Oracle Business Intelligence EE)/Oracle Dataguard/Python/R ○ Hadoop/NoSQL(MongoDB/HBase/CouchDB/Cassandra)/MapReduce/HDFS. ○ SOA / Hybrid Cloud Integration/adoption SME/Architect and consulting. ○ Wifi Calling/Tibco ESB/Huawei ESB/Glassfish ESB Integration Architect. ○ Rating and charging (OCS) & Billing requirements delivery on BSS. ○ Jira/OSS management ○ MVNO/MVNE integration architecture and implementation: (FNB Connect, VMSA, MVN-X and more) / MVNE Integration Architecture and implementation: (CDRator for Billing and rating). IoT(Internet of Things compliance and adoption, i.e. Telemetry requirements) enterprise strategy, readiness and adoption: Semantic Web/M2M Integration SME/Architect. |
| <p>Accenture (Anglo American, Nedbank, Standard Bank, De Beers, Eskom, Cell C)</p> | <p>February 2015 – September 2015</p> | <ul style="list-style-type: none"> ● Implementing Enterprise Service Layer using IIB and WMQ. Integration Layer/architecture transformation. ● Lead Technology |

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| | | <p>(Integration) Architect - Advanced Technology and Architecture:</p> <ul style="list-style-type: none"> Upskilling and Training of internal architects on legacy and latest technology trends and architecture. <p>Integration SME:</p> <ul style="list-style-type: none"> Migration of SAP PI middleware to webmethods(Anglo and De Beers). API/Mobile/iPaaS/IoT/Big Data/webMethods ESB/Hadoop/NoSQL(MongoDB/Cassandra)/Aris/Python/R <p>/CloudStream/Mule ESB-CloudHub/Cast Iron/IIB/IBM Websphere/IBM Buemix/IBM SOftlayer/Informatica/SoftwareAG Webmethods/Cloudhub/Mules ESB / Jenkins / Maven /Gitlab / DevOps/micro services</p> |
| <p>Ernst & Young (EY) (GEMS, Standard Bank, GDID)</p> | <p>August 2014 – Jan-2015</p> | <p>Enterprise Integration Architect/SME:</p> <p>Implementing Enterprise Service Layer using IIB and WMQ. Integration Layer transformation projects.</p> <p>Upskilling and Training of internal architects on legacy and latest technology trends and architecture.</p> <p>Create and grow the Cloud and Mobile Architecture advisory EY practice into Africa.</p> <p>Strategy and Technology architecture consulting on various technologies and skills training both to EY and it's clients:</p> <p>Mobile/Cloud(iPaaS)/SOA/Datapo wer/</p> <p>BYOD/IBM Worklight/ IBM MaaS 360/BOP/Java/C++/Cobol/SVN/S QL/WSDL/IBM Websphere/IBM IB(Integration Bus)/XCOM/IBM Mainframe z/os/WSRR/Webservices/Cordys/Integration SME/REST/Oracle Integration Framework/ Target Architecture/Sparx Enterprise</p> |

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| | | Architect/Archimate. |
| Deloitte (Reserve Bank, NSFAS, Standard Bank, Bank of Angola, and ABSA, Wesbank). | January 2013 – July 2014 | Lead Integration Architect/Specialist : Implementing Enterprise Service Layer using IIB and WMQ. Integration architecture. Cloud/Mobile/SOA/Datapower/BO P/Java/C++/Cobol/SVN/SQL/WSDL/IBM Websphere/IBM IB(Integration Bus)/XCOM/IBM Mainframe z/os/WSRR/Webservices/Cordys/Cloudhub/Mule ESB/ CloudHub/Jenkins/Gitlab/Maven/IBM worklight/ IBM MaaS360/REST/Oracle Integration/Integration Framework Architecture/ Sparx Enterprise Architect/Archimate. ETL architecture. Upskilling and Training of internal architects on legacy and latest technology trends and technology architecture. |
| Kaizen IT Solutions/Mahindra /United Phamarceutical Distributors (UPD) | March 2012 – December 2012 | C/C++/UNIX(SUN – SOLARIS)/INFORMIX/(PL/SQL)/ORACLE/VI EDITOR/ – Developer. Implementing Enterprise Service Layer using IIB, Datapower, WSRR and WMQ. Integration developer. |
| Absa Bank | August 2006 to February 2012 | Senior Integration Developer (Application Architecture) Implementing Enterprise Service Layer using IIB, Datapower, WSRR and WMQ |
| Standard Bank | June 2005 to July 2006 | Technical Specialist (ITD08) Implementing Enterprise Service Layer using IIB, Datapower, WSRR and WMQ. Integration developer. |
| Caresoft | January 2000 to December 2004 | Analyst Programmer (Contractor) |
| Denel / Infoplan | May 1998 to December 1999 | Programmer / Analyst Programmer (Contractor) |
| Fedsure | 1995 to 1998 | Trainee Programmer / Programmer change from actuarial |

CAREER DETAILS

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| COMPANY | Accenture |
| POSITION HELD | Technology Architect/Integration Specialist/SME/Enterprise Architect |
| TECHNOLOGY (if | webMethods/Ellipse/Emptoris/SAP MDM/MaaS360/IBM Worklight/Mule |

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| applicable) | ESB/Cloudhub/C++/Java/Cobol/IBM Websphere/Message Broker/IIB/Datapower/WSRR/Contivo/QT/MQ/Celbux/Toolkit/UNIX/Linux/SQL/Cordys/Phoenix/WSDL/SOAP/REST/WebServices/IBM Mainframe. |
| REASON FOR LEAVING (if applicable) | Current |

Responsibilities:

- **Process lead and integration manager for the migration of the integration platform from SAP-PI to webMethods.**
- **Cloud/SaaS integration process lead and SME.**

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| COMPANY | Ernst & Young (EY) |
| POSITION HELD | Integration Specialist/SME/Developer/Enterprise Architect |
| TECHNOLOGY (if applicable) | MaaS360/IBM Worklight/Mule ESB/Cloudhub/C++/Java/Cobol/IBM Websphere/Message Broker/IIB/Datapower/WSRR/Contivo/QT/MQ/Celbux/Toolkit/UNIX/Linux/SQL/Cordys/Phoenix/WSDL/SOAP/REST/WebServices/IBM Mainframe. |
| REASON FOR LEAVING (if applicable) | Better prospects |

Responsibilities:

- Currently responsible for the build out of EY SA's IT Advisory EA cloud & mobile consulting capability across Africa.
- Enabling BYOD internally to EY and to clients.
- Integration Architecture consulting to various clients.
- Multi-Channel Architecture (Standard Bank)
- Cloud & Mobile Integration Architecture.
- Enterprise Architecture for DHET, DGID and GEMS.
- Exploration of innovative technologies.
- Demonstrations of leading-edge technologies that span a selected range of research prototypes.
- In-depth discussions about practical implementations of technologies available today e.g Semantic web (Internet of Things) SME.
- GEMS(Government Employee medical aid Scheme) IT transformation programme: RE-engineering of the GEMS IT EA.

- Define technical IT security plans and documentation to support
- Implement the company's group information security and IT Strategy.
- Act as the technical lead in key IT and Security programmes, projects and initiatives.
- Act as Subject Matter Expert (SME) in projects with IT relevance, specifically in the context of Group Technology Services, but also other projects in business areas.
- Own and provide leadership , including reviewing, providing input and approving solution designs from a security perspective.
- Acts as Information Security Architect for solution designs.
- Act as key approver in context of Change Management, specifically in regards to all changes requiring security oversight.
- Own the IT Security gates within the project SDLC
- Execute code reviews as per agreed by the company technical standards and good practice.
- Drive Vulnerability and Patch Management Programme.
- Coordinate technical security assessment and penetration tests, as well as drive remediation.
- Assist to identify and mitigate IT security related risks and audits for Group Technology Services
- Act as information security incident custodian.
- Perform information security research, and act as thought leader.
- Provide relevant recommendations, and develop security patterns.
- Conduct information security technical training and awareness.

- Conduct technical evaluation and assessment of Third Party compliance on technical information security control areas.
- Assist with the development and approval of security standards within GTS.
- Maintain oversight and drive corrective actions for compliance to security standards within GTS.
- Coordinate metric gathering and reporting into GTS and Group Chief Information Security Officer.

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| COMPANY | Deloitte |
| POSITION HELD | Integration Specialist |
| TECHNOLOGY (if applicable) | C++/Java/Cobol/IBM Websphere/Message Broker/IIB/Datapower/WSRR/Contivo/QT/MQ/Celbux/Toolkit/UNIX/Linux/SQL/Cordys/Phoenix/WSDL/SOAP/REST/WebServices/IBM Mainframe/Mule ESB/ IBM Worklight/MaaS360, Scikit, Numpy, R, Python |
| REASON FOR LEAVING (if applicable) | Better prospects |

Responsibilities:

- Re-engineering of NSFAS system in CapeTown using a Cloud based SOA BOP platform (Cordys).
- Design and develop Interoperability infrastructure for all applications including external vendors.
- Integrate Phoenix(Accounting system), AccPac, Open Text, XDS(Credit bureau), SMSPortal, using SOAP web services/ REST web services/HTTP.
- Integration of NSFAS to Celbux (Google based payment system)
- Enable SMS functionality by integrating NSFAS to SMSPortal using Webservices

- Conduct a maturity assessment of the Enterprise Integration capability within the Reserve Bank – e.g. CMMI based OSIMM evaluation.
- Document an Enterprise Integration approach for the Reserve Bank, including recommendations and motivations for change.
- Evaluate IBM versus TIBCO SOA integration stack and suggest what stack the Bank should use for the SOA integration initiative.
- Define an Enterprise Integration Reference Architecture for the Reserve Bank that will represent the target integration architecture and related elements. This may include the core ESB and related technology stack; as well as key interfaces into the Bank's integration domains (e.g. Oracle, IBM, Microsoft, NCMS).
- Develop an Enterprise Integration Framework.
- Provide a decomposition of software, hardware, services and tools required to realise the target architecture.
- Develop an Enterprise Integration Reference Model for the Reserve Bank, including required integration building blocks.

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|---|---|
| COMPANY | Kaizen IT Solutions |
| POSITION HELD | C/C++/Java Developer |
| TECHNOLOGY (if applicable) | Pro*C/C++/JavaScript/QT/QML/ Embedded SQL/ UNIX(SUN -SOLARIS), INFORMIX /ORACLE/VI EDITOR/. |
| REASON FOR LEAVING (if applicable) | Resigned (November 2012), Contract Dispute. |

Responsibilities:

- Enhance Clicks/UPD system to cater for Foreign currency transactions in anticipation of the company takeover by Pfizer.
- Develop QT/C++ plugins to enable web based access to the Legacy Applications.

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| COMPANY | Absa Bank |
|----------------|------------------|

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| POSITION HELD | Senior Developer (Application Architecture) |
| TECHNOLOGY (if applicable) | C/C++/Qt/QML/Java/NetBeans/Eclipse/Unix/vi - editor, Cobol, IMS, XCODE 4, Objective-c, .Net, Delphi, REXX, TSO, JCL, Easytrieve, IBM Rational, Ivory Studio, WSDL, Datapower, WSRR, Websphere Message Broker, TFS, Net wide Assembly (NASM), XML, XLST, MVS, Z/OS, SQL, ORACLE, DB2, IBM Utilities, Assembler, Delphi, Unix and IBM System z, z/Linux, Unix system services; Dump reading(IPCS), SOAP gateway, ISPF(dialogue development & edit macros). Integration Architecture. |
| REASON FOR LEAVING (if applicable) | Better prospects |

Responsibilities:

- Integration Architecture and Development.
- Development of webservice security infrastructure in a unix shell using C++.
- Identify points of integration between legacy and front end systems to facilitate integration with new technology platforms e.g Mobile and Internet banking .
- Assist in the connection of the hardware.
- Do presentations on SOA and guide the application area programmers on how to open up the backend(Legacy system) in a SOA environment.
- Develop webservices(End – to End) on SOAP Gateway.
- Develop guidelines and standards for the migration of old SOAP gateway services to Ivory.
- Enhance the WsdL development tools using Java/C++.
- Develop and support SOA and Webservices on GT Software Ivory/Datapower.
- Govern SOA (Develop and enforce Webservice standards, guidelines (e.g. migration guide for migrating Ivory webservices to Datapower etc.
- Code stubs/adaptors for interfacing between the legacy system and front end.
- Develop Run Time monitoring tools using java, c++ and assembler.
- Produce Run time statistics for technical and managerial purposes, based on the log streams.
- Assist in the development of the wsdl repository.
- Develop tools to aid in the mapping of input and outputs in building webservices
- Modify the banks backend modules in line with SOA project.
- Provide support and guidelines for backend, front end and the interfacing layer developers.
- Qt/C++ WebPlugins.

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|---|---|
| COMPANY | Standard Bank |
| POSITION HELD | Technical Specialist (ITD08) |
| TECHNOLOGY (if applicable) | C/C++/SQL/Cobol, CICS, TSO, JCL, Easytrieve/IBM Websphere |
| REASON FOR LEAVING (if applicable) | Career growth |

Responsibilities:

- Maintain and enhance the Bank Card Production system
- Provide call out duties

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|---|---|
| COMPANY | Caresoft |
| POSITION HELD | Analyst Programmer (Contractor) |
| TECHNOLOGY (if applicable) | C/C++/SQL/Cobol, CICS, Roscoe, TSO, JCL, MVS, Visual Basic. |
| REASON FOR LEAVING (if applicable) | Contract expired |

Responsibilities:

- Maintain and develop their Accounting Systems
- Hardware Support, which include the installation of the software, Windows, and technical support

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| COMPANY | Denel / Infoplan |
| POSITION HELD | Programmer / Analyst Programmer (Contractor) |
| TECHNOLOGY (if applicable) | C/C++/Unix/Cobol, CICS, IMS, DB2, CA – Ideal Datacom, Roscoe, TSO, MVS |
| REASON FOR LEAVING (if applicable) | Better prospects |

Responsibilities:

- Develop and maintain the Personnel system OOR for SANDF
- Develop the Pilot Licensing System for SANDF
- Develop the Army' s Categorisation System
- Develop and maintain the Military Hospital's System
- Develop and maintain the SANDF Clinical history system.
- Develop and maintain SANDF Patient Identification system which identifies patients authorised for medical treatment namely SANDF members and their dependants, as well as other authorised types of patients, e.g. Military pensioners (VP members), SAP/DCS, MP and ONG members.
- Maintain and develop 2IC of the Y2K project

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| COMPANY | Fedsure |
| POSITION HELD | Trainee Programmer / Programmer change from actuarial |
| TECHNOLOGY (if applicable) | C/C++/SQL/Unix, Ideal, Datacom, Roscoe, JCL/Cobol/CICS |
| REASON FOR LEAVING (if applicable) | Better offer |

Responsibilities:

- Develop and maintain systems for the Accounting System
- Enhance the Pensions Admin System
- Develop and maintain Fedsure Health medical aid system

TECHNOLOGY / SKILLS EXPERIENCE

| LEVEL | DESCRIPTION |
|-------|-----------------------------------|
| 1 | Had appropriate training only |
| 2 | Limited practical experience |
| 3 | Solid practical experience |
| 4 | Well versed; extensive experience |
| 5 | Expert; extensive experience |

| TECHNOLOGY/SKILLS | YEARS | LEVEL |
|--------------------|-------|-------|
| C++ | 12 | 5 |
| Qt4 | 4 | 5 |
| Cobol | 13 | 5 |
| Assembly | 4 | 5 |
| IMS | 13 | 5 |
| Objective-c | 24 | 4 |
| XCODE | 24 | 4 |
| Java | 4 | 5 |
| REXX | 5 | 5 |

| | | |
|---------------------------|------------|----------|
| TSO | 13 | 5 |
| JCL | 13 | 5 |
| Easytrieve | 8 | 4 |
| IBM Rational | 11 | 5 |
| Ivory | 5 | 5 |
| WSDL | 5 | 5 |
| Assembler | 8 | 4 |
| XML | 8 | 5 |
| MVS | 13 | 5 |
| ZOS | 156 | 5 |
| IBM Utilities | 13 | 5 |
| CICS | 8 | 4 |
| Roscoe | 8 | 4 |
| Visual Basic | 2 | 3 |
| DB2 | 7 | 4 |
| CA – Ideal Datacom | 5 | 5 |
| Ideal | 5 | 5 |
| DFSORT | 10 | 5 |

References:

1. Roni Emanuel: Chief Integration Architect (ABSA): 084 581 6809
2. Nellia Muregerera: SM Consultant (MTN): 083 212 7700
3. Jason Annetts: Business development Manager (MTN): 083 212 1874
4. Xolile Msuthwana SM (Cellc): 082 449 0398
5. Goodman Silaule Senior Manager Business Moblity (MTN): 083 212 6275
6. Thandeka Mzobe SM Busines Analyst (Deloitte): 084 777 1232
7. Kevin McKerr (Data Privacy solution): 066 243 0786

Reference from Privitar (Data Privacy solution):

We started working together after you were introduced to us in July 2019 by Michael Bell. We met Michael at the CDAO (Chief Data Architect) conference where he was a guest speaker, we chatted to him about Privacy and he recommend we work with you to ascertain whether our Privacy solution would add value to MTN.

Since then we spent many hours together at MTN going through the solution capabilities, conceptualising how it work work for MTN as well as meeting with several colleagues. I would say that although we met a number of times at MTN, we have spent many more hours remotely, into evenings and over weekends.

One of our engineers is based in France so the work we did with him would have been mostly remotely and the work we did over weekends was also most likely remote. Much of the work revolved around working with the technical aspects and trying them out in various scenarios. I recall a particular weekend when you and Javier started on Friday night and pretty much didn't let up until Sunday evening!

I have found you to be super knowledgeable about all thing's privacy and modern data architectures. Our interactions have pretty much been related to 'how can this help MTN.?' For what it's worth you seem totally committed to the MTN cause and it has been a pleasure to work with you.

PS. The one thing I've noticed is that whenever we have met at MTN you are forever being stopped by your colleagues for your thoughts and technical advice on this or that...

All the best,
Kevin

Recent Innovation Achievements 1:

1. **Group Tech Day First Price:**

Tweets_analysis_&_DATA_PRIVACY_Preservation_CONFLUENT(KAFKA)_PRIVITAR_CLOUDERA_DEMO



MTN_GROUP_Tweets
analysis&_DATA_PF

2. **Achievement:**

Educated and Paved the way for Real-Time data capabilities for MTN Group beyond Mobile Money:



MTN.Mobile.Money
V3.6.pdf

3. **Achievement:**



Cloudera Real-time Streaming Demo.pdf