SKILLS FRAMEWORK FOR INFOCOMM TECHNOLOGY
TECHNICAL SKILLS & COMPETENCIES (TSC) REFERENCE DOCUMENT

TSC Category	Operations and User Support					
TSC Title	Network Administration and Maintenance					
TSC Description	Monitor network in order to provide for optimum levels of network performance and minimisation of downtime. This includes detection, isolation, recovery and limitation of the impact of failures on the network as well as provision of support to system users through ongoing maintenance information sharing and training					
TSC Proficiency Description	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**
	ICT-OUS-1009-1.1	**ICT-OUS-2009-1.1**	**ICT-OUS-3009-1.1**	**ICT-OUS-4009-1.1**		
	Document network performance levels, and identify and isolate network faults	Monitor network performance, investigate and resolve network faults or downtime	Review, optimise and align network performance with business needs, and program basic rules into Software-Defined Networking (SDN) applications	Assess network capabilities and set network rules to support software-defined infrastructure and optimise performance in changing environments		
Knowledge	• Processes in network performance tracking over a time period • Standard processes and techniques for network fault detection, identification and isolation • Network maintenance tools and processes • Communication channels for dissemination of network updates or information	• Assessment and analyse network performance • Different kinds of network faults and failures • Potential causes and impact of network faults or downtime • Network fault detection, identification, isolation and limitation techniques • Fault resolution techniques for a range of different network issues • Critical information in communication of network updates to users	• Impact of network performance on business operations • Best practices in network administration and maintenance • Priorities and dependencies in communication of network updates or information • Concept of network virtualisation • Programming languages for software-defined applications • Indicators of software-defined network performance	• Industry best practices in fault detection, isolation and recovery in the context of network administration • Network resource and capability requirements to support software-defined infrastructure • Network virtualisation management and monitoring • Multi-tier networking • Range of network rules and programming codes • SDN program development • Semantics of different networks and network types		

Abilities	• Maintain updated log and documentation of day to day levels of network performance • Follow detection or identification procedures to identify and isolate network faults • Resolve commonly-encountered network faults and failure using relevant network maintenance tools, in line with standard fault recovery procedures • Perform tests to identify any unresolved faults • Communicate relevant information and updates to be communicated to system users	• Monitor network performance and highlight areas for further review to optimise network performance • Identify potential impact of network faults and failures • Take appropriate action to isolate or limit network faults and failures • Resolve network faults and failures following broad recovery principles and procedures • Investigate the causes for unresolved faults and propose solutions that can address them • Develop required communication material for information sharing	• Review network performance and determine areas for improvement, to optimise and align network performance with business needs • Assess incidents of network faults or downtime to direct recovery and resolution efforts • Determine the network updates and maintenance information to be rolled out • Program basic rules into software-defined networking (SDN) applications • Monitor the functioning and performance of SDN applications, controllers and components • Routenetwork's rules when required, to optimise network performance • Program adjustments to network-wide traffic flow to meet changing needs	• Establish guidelines and Standard Operating Procedures (SOP) for network fault detection and recovery • Establish network maintenance processes to ensure performance is stable and optimal • Assess the readiness of network equipment and capabilities for emerging software-defined infrastructure • Determine appropriate network rules and desired behaviours to be programmed in accordance to the requirements of the network • Develop dynamic, automated SDN programmes to facilitate the rapid configuration, management and optimisation of network resources • Conduct more complex programming of rules for SDN applications • Direct overall network programming activities and performance • Re-direct network's rules and programme adjustments to optimise network performance in changing contexts and environments		

Range of Application	Types of networks may include but are not limited to: • LAN network (e.g., SOHO network, WLAN) • Radio network • Telecommunications network • Next generation network (NGN) • Wide area network (WAN) Cloud based network