

**SKILLS FRAMEWORK FOR MEDIA
TECHNICAL SKILLS AND COMPETENCIES (TSC) REFERENCE DOCUMENT**

TSC Category	Game Programming and Quality Assurance					
TSC Title	Game Networking					
TSC Description	Design and develop tools and programs for game to be played over a local network or internet for multiplayer gameplay					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
		MED-GDP-2010-1.1	MED-GDP-3010-1.1	MED-GDP-4010-1.1	MED-GDP-5010-1.1	
		Write code to implement specific aspects of game networking and maintain game server operations	Develop programs and tools for the implementation, performance testing and optimisation of game networking systems for multi-player gameplay	Lead the development of networking systems for a game to implement multiplayer gameplay functionality over local networks or the internet	Drive the design and implementation of game networking systems to enable multi-player gameplay functionalities	
Knowledge		<ul style="list-style-type: none"> Principles and concepts of multi-player gameplay Animation, physics and gameplay code Platform-specific online game services Application Programming Interfaces (APIs) Low-level networking APIs including Transmission Control Protocol/Internet protocol (TCP/IP), User Datagram Protocol (UDP) and sockets High-level programming languages used in game programming Scripting languages 	<ul style="list-style-type: none"> Principles and concepts of multi-player gameplay Animation, physics and gameplay code Components of networking systems Peer-to-peer lockstep, terminal client and predictive client approaches to game networking Application Programming Interfaces (APIs) High-level programming languages used in game programming Scripting languages Techniques for optimising networked gameplay Techniques and approaches for network security Networking features of game engines 	<ul style="list-style-type: none"> Design of network architecture for synchronisation of objects on multiple hosts in a networked environment Approaches and techniques for cloud-based gameplay Capabilities, features and limitations of game networking approaches and tools Algorithms for game networking features Optimisation of game network architecture Techniques for optimising networked gameplay Techniques and approaches for network security Game engine features and functionalities 	<ul style="list-style-type: none"> Industry standards and upcoming technologies in game networking and network security Techniques and approaches for designing network architecture for synchronisation of objects on multiple hosts in a networked environment Approaches and techniques for implementing cloud-based gameplay Capabilities, features and limitations of various game networking approaches and tools Game engine features and functionality 	
Abilities		<ul style="list-style-type: none"> Interpret game networking architecture 	<ul style="list-style-type: none"> Analyse technical briefs and game design 	<ul style="list-style-type: none"> Conceive aspects of the game and game 	<ul style="list-style-type: none"> Ideate multi-player game features and 	

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		<p>to understand scope of assigned game networking elements</p> <ul style="list-style-type: none"> • Write programs to configure game servers for running online gameplay • Write code to implement specific elements of the game networking architecture • Test and debug code to resolve errors and achieve desired functionalities • Track the performance of the game networking after game release • Create and maintain updated documentation for programming and performance tracking of game networking 	<p>documents to understand gameplay features to be implemented for networked gameplay</p> <ul style="list-style-type: none"> • Create a list of elements or aspects of the game which would require networking • Ideate aspects of the game and game information that would be required to be sent over the network, with game designers and programmers • Create prototypes to demonstrate implementation of game networking • Write code to implement the network architecture of the game • Write scripts to customise networking aspects of standard third-party game engines to meet the game's requirements • Test and debug code to resolve errors and achieve desired functionalities • Utilise in-house or third-party tools to implement network security features within game networking systems • Perform optimisations on the game's networking architecture and features through post-release patches 	<p>information that would be required to be sent over the network, with game designers and programmers</p> <ul style="list-style-type: none"> • Analyse the game's technical specifications and gameplay designs to understand the requirements for server bandwidth for online gameplay • Design blueprint for the networking architecture of the game • Create algorithms to guide the implementation of game networking functionalities • Review functioning prototypes to propose modifications for optimising networked gameplay • Develop tools for testing and analysis of networking systems • Review post-release game networking performance to implement optimisation through the creation and release of patches 	<p>online matchmaking with the game designers and programmers</p> <ul style="list-style-type: none"> • Advise game designers on the feasibility of game features for networked gameplay • Determine the engines and tools to be used for implementing game networking • Lead the ideation and resolution of complex network architecture problems for effective implementation of game networking • Guide the refinement of game features and functionality based on performance of networked gameplay • Guide modifications to the game's networking functionality based on post-release feedback and performance 	
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			<ul style="list-style-type: none"> • Create tools for testing and analysing game networking performance 			
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