

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

TSC Category	Game Programming and Quality Assurance					
TSC Title	Game Server Programming					
TSC Description	Design, develop and operationalise game servers and backend systems to support online game operations					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
		MED-GDP-2013-1.1	MED-GDP-3013-1.1	MED-GDP-4013-1.1	MED-GDP-5013-1.1	
		Support the deployment and operationalisation of game servers and provide maintenance and support for game server operations	Design, develop and deploy game servers and other backend systems required for game server operations	Lead the design, development and implementation of game servers and other backend systems required for game server operations	Drive the adoption of suitable technologies and approaches for game server operations to achieve the vision of the game	
Knowledge		<ul style="list-style-type: none"> Principles and concepts of multiplayer gameplay Components of networking systems Peer-to-peer lockstep, terminal client and predictive client approaches to game networking High-level programming and scripting languages Troubleshooting of game server and operations issues 	<ul style="list-style-type: none"> Techniques for optimising networked gameplay Techniques for implementing network security Platform-specific online game services Matchmaking for online games Techniques for prevention of reverse engineering of re-configuration of servers to prevent cheating or hacking Asynchronous programming methods and techniques Multi-threaded programming techniques and methods 	<ul style="list-style-type: none"> Bandwidth and server capabilities required for online game operations Approaches and techniques for design of gameplay with virtualised infrastructure Techniques and approaches for network security and its implementation Virtual infrastructure services Typical challenges in implementation of game server operations Scalability of game server design and operations 	<ul style="list-style-type: none"> Industry standards and upcoming technologies and approaches in game server design, deployment and operations Capabilities and limitations of in-house infrastructure for game server operations Bandwidth requirements and server capabilities for implementing networked gameplay for a game Capabilities and limitations of gameplay with virtualised infrastructure Network security threats and challenges for game server operations 	
Abilities		<ul style="list-style-type: none"> Write code to implement specific modules or functions for game backend processes 	<ul style="list-style-type: none"> Interpret technical briefs to understand game server requirements Design game server architecture to meet game networking and 	<ul style="list-style-type: none"> Review technical design documents and game networking architecture to understand the technical server requirements for games 	<ul style="list-style-type: none"> Drive research to identify new approaches that can be applied to game server design Review proofs-of-concept to approve new 	

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

		<ul style="list-style-type: none"> • Configure game servers as per designed server architecture • Maintain the game virtual infrastructure and game servers to ensure smooth online gameplay • Perform troubleshooting for game server issues • Provide support for game server operations through troubleshooting and resolving issues 	<p>operational scalability requirements</p> <ul style="list-style-type: none"> • Review developed code to achieve desired backend functionality • Deploy game servers and backend systems to support game operations • Prototype new backend features and functionalities to enhance backend operations • Collaborate with engine and game development teams to integrate client and backend aspects of the game • Integrate external virtual infrastructure services to game services • Perform optimisations on the game servers to resolve issues, balance load and increase efficiency of the game server operations • Develop tools for the monitoring and maintenance of server operations 	<ul style="list-style-type: none"> • Collaborate with development, production, analytics and marketing teams to understand the server requirements for game operations • Determine the technical approaches to be taken for game server design based on the technical requirements • Develop technical briefs to communicate server requirements to the programming team • Identify third-party tools to implement network security features within game networking • Oversee the design, prototyping and development of backend functionalities • Review server architecture designs for functionalities and scalability • Review backend prototypes to refine functionalities 	<p>technologies and approaches for adoption</p> <ul style="list-style-type: none"> • Review availability of dedicated bandwidth for networked gameplay in consultation with the game production team • Drive design and implementation of network security features for game servers 	
--	--	---	---	--	--	--