

**Specification of Competency Standards**  
**for the Information & Communications Technology Industry**  
**Unit of Competency**

Functional Area - DMT Architecture

Title	Develop infrastructure performance testing
Code	108055L4
Description	This unit of competency applies to all Digital Media Technology (DMT) practitioners responsible for infrastructure performance testing. With internal infrastructure connected to CDN one would expect performance to be comparable or better than the origin, since CDNs should have highly optimised servers and the first packet should not have too far to go. The content download should be much faster, since the edge nodes are closer to the end user than the origin is. This UoC concerns development of testing to monitor performance of CDN.
Level	4
Credit	3
Competency	<p>Performance Requirements</p> <p>1. Knowledge for Developing infrastructure performance testing</p> <ul style="list-style-type: none"> <li>• Possess good project management skills and capable of formulating business strategies</li> <li>• Possess in-depth knowledge of developing and implementing network test plans and protocols</li> <li>• Possess in-depth knowledge of IP network and CDN technologies</li> <li>• Possess good knowledge of infrastructure network design and network risk management methodologies</li> <li>• Possess in-depth knowledge in network congestion, network inspection tools, OS kernel parameters impacting the overall network bandwidth</li> <li>• Possess good understanding of CDN delivery requirements for different platforms, such as PC, mobiles, tablets, and Virtual Reality (VR) wearable devices, etc.</li> </ul> <p>2. Develop infrastructure performance testing:</p> <ul style="list-style-type: none"> <li>• Work with CDN service provider: <ul style="list-style-type: none"> <li>○ to map out and confirm the infrastructure</li> <li>○ to understand their specific algorithms that ensure the stability and the availability of the CDN nodes</li> <li>○ CDN service configurations</li> </ul> </li> <li>• Formulate a list of testing matrices, including but not limited to the following: <ul style="list-style-type: none"> <li>○ DNS time: determine no faulty DNS setup slowing access</li> <li>○ Connection time: determine CDN has great network connectivity, low latency and no packet loss</li> <li>○ Wait time: shows the hot content is fetched from edge node or needs to fetch from the server. Also ensure CDN is not slow during peak period</li> <li>○ Throughput: shows the throughput of the CDN test is higher than the origin (i.e. no CDN) no matter what the file size is</li> </ul> </li> <li>• Develop test plans with methodology to perform tests, including: <ul style="list-style-type: none"> <li>○ Static content tests through CDN URL vs. original URL</li> <li>○ Different file sizes (1K, 5K, 50K, 500K, etc.)</li> <li>○ Different geographical locations</li> </ul> </li> <li>• Identify tools that can be used to measure/monitor performance of internal infrastructure (content server, storage, etc.) and Real User Monitoring (RUM)</li> <li>• Develop procedures with guidelines on when and how to perform different tests to achieve the expected test matrices with reporting presentation format. Some tests may need to be run continuously and automatically to monitor status and performance of overall architecture</li> </ul>

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	<p>3. Exhibit professionalism</p> <ul style="list-style-type: none"><li>• Be updated with current CDN technologies and committed to ensure contents are delivered to the users/customers at the expected performance</li><li>• Passionate about traffic optimisation and associated technologies</li></ul>
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none"><li>• Work with CDN service provider effectively, to develop full mapping of organisation's infrastructure with true picture of configuration settings which can be used in testing adjustments and result formation</li><li>• Formulate a full list of test matrices that can present a true picture of the CDN performance</li><li>• Develop test plans and testing procedures that can guide the testers to carry out tests and deliver the result in the required format</li></ul>
Remark	