

Project Number	TQP101
Project Title	Designing networking system for multi-player gaming over LAN/Internet
Project Description	<u>Networking</u> Networking is an important part of modern games and it involves taking care of several factors to give a satisfying gaming experience. Even though modern internet speed has made manifold improvements, fast response games like flight simulators, racing face severe limitation when building multi-player games. Current racing games have limited multi-player options with at most 8 players playing on the same race. Such fast-response games are unable to allow larger teams to race together without affecting the user-experience. Networking quirks like latency, packet loss, synchronization, bandwidth limitation and variance make developing network games difficult especially if it involves large number of players and for games needing faster response. Different console platforms which have different operating systems make the problem even more difficult to handle when writing cross-platform games. The aim of the project is to design and build a efficient networking system which handles all the networking quirks like latency, packet loss, synchronization etc transparently and provides a middleware platform for rapid addition of networking capabilities to next generation games. Optimal-data organization, packetisation and prediction algorithms for faster response in games will be researched on. The middleware platform should be built to provide a cross-platform interface for network synchronization in multiplayer games. The research will be focused on optimizing the network utilization and giving a better user-experience in

	Internet like heterogeneous networking environment. Such a networking model should have these features: • Bandwidth conservation: send static data once, compress data, only send information that is relevant to client, prioritize object updates.. • Coping with Packet Loss: Model for Real-time networked simulations. • Strategies for Dealing With Latency (*): Interpolation, Extrapolation, Client-side prediction..
Hardware/Software / Reference	• Visual Studio 2005 C/C++ • Xbox 360/PS3 development kits • Quazal SDK for reference • XLEngine • http://opentnl.sourceforge.net/doxytree/fundamentals.html • Game programming gems - networking part.