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Innovative Strategy for MMOG Supporting Distributed Polyglot Components

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ABSTRACT: The term MMO stands for "Massively Multiplayer Online" games and they are real-time multi-player games. The game type has become popular on PCs in the last ten years. The biggest games can have thousands of simultaneous players and millions of registered players. The cost of creating the games has grown to match Hollywood movie budgets. The games have become bigger, players demand more and better content, the 3D-graphics have become almost photo realistic and games are developed for multiple platforms. Mobile MMO games exist but none have clearly established themselves like the top MMO games on PCs.

We propose Innovative Strategy for MMOG Supporting Distributed Polyglot Components. The MMOG networks deal with the challenge of update message exchange among a large number of components that are subject to both mobility (constant change of virtual location).The use of geometric routing helps alleviate this requirement by exploiting location addressing and thus eliminating the need for IP-search queries.

However, geometric routing comes with a number of convergence and performance issues that require solutions for reducing hop-count and minimizing overall delay while providing guaranteed message delivery. Optimization of message sending using state prediction techniques is performed at the attribute level of objects. At the lowest level, duplicated objects communicate using a network engine that provides remote method invocation and publish/subscribe capabilities. We outline the architecture of implementations of designed for experiments in an academic setting.

KEYWORDS: MMOG, Polyglot, Mobile MMO, geometrical routing algorithms,node mobility

I. INTRODUCTION

Now a days, a game is a form of challenge between the logic of the game and players to reach the goal of the game. This definition does however not completely cover what a video game is. A video game is a game played not by using physical objects, but by using a physical controller and thereby influencing a virtual object or objects on a screen or TV.

Video games can be divided into game genres, such as Role-Playing Games (RPG), First-Person Shooter (FPS), or Mass-Multiplayer Online (MMO) games, which are just some the genres. Each of these genres have some distinct features or characteristics. In MMO games a vast number of players participate in the game together via a computer network.

EVE Online is an example of a MMO game that has all players combined onto one game world. EVE Online is also a RPG game which means it usually has relatively loose requirement to latency (the time it takes for player actions to take in the game world),due to the way game mechanics work. In RPG games player interaction is often limited to explicitly select targets. Meaning, the user will click the player she wishes to interact with. In opposition to this, FPS games usually require a lower latency to have an optimal game experience. This is because of the fast pace and requirement to aim at enemies. A high density of players in one area of the game world, called crowding, can put immense stress on the game servers[3], increasing latency and thus giving players a poor game experience.

During the history of multi-player games, cheating has been noticed as a significant problem, that can affect the game experience for other players. Game developers try to prevent cheating, because of the bad reputation a game can get when there are players with an unfair advantage. In the RPG Diablo I cheating was a major problem which developers

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tried to remove in the sequel Diablo II. The major difference in Diablo I to Diablo II was that the avatar data, information about a virtual character a player controls in the game world, was moved from the unsecured clients to a secure server, which made it more difficult to cheat.

II. LITERATURE SURVEY

Mmo Games

MMO games are games where many players play in a shared virtual world. The virtual world is open and already exists when a player logs in and continues to exist when a players logs out of the game. MMO comes from "Massive Multiplayer Online".MMO games support large amounts of simultaneous (at least hundreds but mostly thousands) players and are played on the internet. They allow the players to interact with each other in the same virtual game- world.

MMO games are real-time multiplayer games, although not all real-time multiplayer games are MMO games. For example real-time multiplayer racing, arcade and first-person-shooter games are not MMO games. Those games "exist" for the time it's played as opposed to MMO games where the game-world exists before players log in and continues to exist after they log off. MMO games are all real-time multiplayer games and the problems and design issues that apply to MMO also apply to smaller real-time multiplayer games (in smaller scale). It is debatable if a MMO game with "only" 10-100 players can be called a MMO game. For simplicity this thesis will use "MMO" for all games that fit into the category – be it a smaller single-server MMO game or a huge MMO game like "World of Warcraft". Ultimately, smaller multi- player games want to grow their game-world and player-base to become a "massive multi-player online" game.

On mobile devices the MMO games have not established themselves like the games on desktops. According to Peterson (2014) the largest potential of MMO games is mobile. He argues that there are hundreds of millions of tablets and over a billion smartphones and that the number is still climbing.

Technology Challenges

For software and game developers, MMO games have been a popular subject since the beginning. One of the reasons is likely the fact that creating a MMO game has always been considered to be a difficult task from the technology-perspective. Developing MMO games requires expertise in many areas from the client to the server and the network connecting them.

An article about MMO game database guidelines writes "Developing an MMOG server requires expertise with client/server architecture, network protocols, security, and database design" (Lee 2003). The article continues to describe the challenges: "The server must be able to handle and verify a large number of connections, prevent cheating, and apply changes (bug fixes or added content) to the game. A system for recording the game's data at regular intervals, without stopping the game, is also important." These listed requirements are still valid but the games have grown from 2003 (which were mostly PC games) to a number of new devices and platforms: smart-phones, tablets, game-consoles, web browsers. They are bigger and have better graphics.

Problem Definition

As mentioned before in [1], the use of geometric routing all aviates the need for IP-queries and lets nodes directly multicast the updates to their area of effect where the interested entities are located. Greedy routing, which is among the simplest and most common online geometrical routing algorithms, tries to bring a message closer to the destination in each step using only local information. Thus, each node forwards the message to the neighbor that is most suitable from a local point of view. The most suitable neighbor can be the one who minimizes the distance to the destination in each step. Graph G = (V,E) supports greedy routing iff greedy routing on G delivers each and every packet to the closest node in V to the packet's destination. It should be noted that if the destination of a packet exists in V, greedy routing should deliver the packet to the exact destination. Therefore, in order to assure guaranteed delivery of updates while using greedy routing, the overlay topology should support greedy routing. The challenge would then turn into the dynamic construction of an overlay topology that supports greedy routing. We shall therefore propose in [1] a dynamic topology control scheme that can handle high churn and node mobility in MMOGs.

We mentioned that nodes are usually in movement and they use location update messages for announcing their new locations to the other nodes. A general method for synchronizing nodes is to send their location update messages periodically with a specific rate. Therefore, every Tseconds, nodes are supposed to generate location update messages and send it to their areas of effect. T could be anywhere from 10 to 280 msec, depending on the game genre [7].

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III. PROBLEM STATEMENT

Problem Statement
Devising and implementing an architectural design strategy for Massively Multiplayer Online Games (MMOG) which facilitates distributed polyglot game components on host servers and mobile clients.

Proposed System
We propose Innovative strategy for MMOG supporting distributed polyglot components which will enhance the existing architecture of MMOG where components are distributed and they are polyglot. The message exchange is enhanced by using the Publish-subscribe remote procedure calls. This is the best component for message passing and that also 2-way message passing.

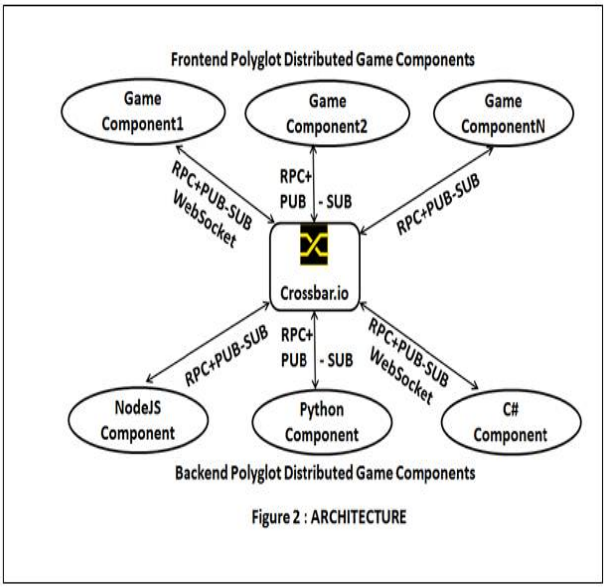

Fig-1: Architecture

We are developing the strategy where we use the front-end polyglot and back-end polyglot, as shown in above figure.

IV. CONCLUSIONS

We presented a novel, Grid-based approach for massively multi-player online games. Our comprehensive service oriented architecture consists of a variety of services that address the specific challenges of online games in comparison to conventional Grid applications.

Following are the expected results of the devised architectural design strategy for Massively Multiplayer Online Games (MMOGs)

1. More return on the investments to the game entrepreneur.
2. This will enhance game playing user experience.
3. To code the logic of a game component a programmer can have programming language options.

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