# Executive summary of progress in 2010

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### What I’m working on:

Massively Multiplayer online games have gained much popularity in recent years. The problem is that they’re still very expensive to develop and run. I’m working on peer-to-peer MMOGs that would remove the need for a server, which will in turn save a lot of money for the operator and also allow independent game developers to create MMOGs, without the need for large initial infrastructure investments.

This is not just something I’m working on, some work has been done on these architectures around the world for a few years now (since 2004). This means there are other architectures out there that propose to achieve the same goals. None of these architectures are, however, complete. Each of the architectures has some aspect still outstanding and none have really made it to being a commercial product.

The architecture we’re developing attempts to further improve on the peer-to-peer paradigm for gaming, by enabling more responsive games. For my part in this architecture, I’ve decided to focus specifically on how data is stored in a distributed fashion, to still ensure low latency interactions.

### What I’ve done so far:

The first year was mostly spent doing a thorough literature study, writing a research proposal and then writing a journal survey paper, based on the research proposal. Some effort was also made to obtain game data from Astrium online, which has yet to bear fruit.

The literature study is now done and the research proposal has been accepted by all parties. I’ve submitted the journal paper and received reviewer feedback. The feedback seems mostly positive, and I’m currently busy making the changes proposed by the reviewers. I’m hoping to be able to resubmit the new version of the paper within two weeks.

The Badumna architecture was also tested and deployed locally. The knowledge gained from this system has allowed for a better understanding of what the network architecture requires of the state persistency layer.

I also have a very solid understanding of what I want to implement and how I’m going to go about implementing it. I believe I know what needs to be done. The task for the New Year is just to do it.

### What still needs to be done:

This year, I shall start working on the implementation of the state persistency architecture for the peer-to-peer networking architecture.

1. This involves obtaining player traces from Astrium online, or directly from World of Warcraft in-game.
2. Developing a grouping algorithm that will identify player groups from the player traces.
3. Developing a state persistency architecture, using player groups.
4. Expanding the pastry overlay to support clustered groups of peers.
5. Measuring the achieved storage latencies and comparing those to current implementations.

### Tracking progress:

When looking back on the Gantt chart, submitted with the initial project proposal, everything seems to be on track. More time might have been spent on developing a testing framework, but this is difficult if the nature of what needs to be tested is not yet known.

The other items have all been completed, except implementing Badumna in the cloud. After some thought, a cloud implementation might not provide the required data to reliably test the architecture. The reason for this is that a primary metric is latency, but the latencies amongst nodes in the cloud are not comparable with nodes on the Internet.

This issue is being dealt with by using real recorded latency data and creating nodes that poses those latencies in a simulation. The idea is then to eventually run the actual state persistency implementation, but on simulated nodes, with latencies that match what is measured in the real world. Simulation is used, because the number of nodes required (at least 3000) is infeasible to set up in practice.