

WARFRAME

Space Ninjas with Machineguns!

Daniel Brewer
Digital Extremes



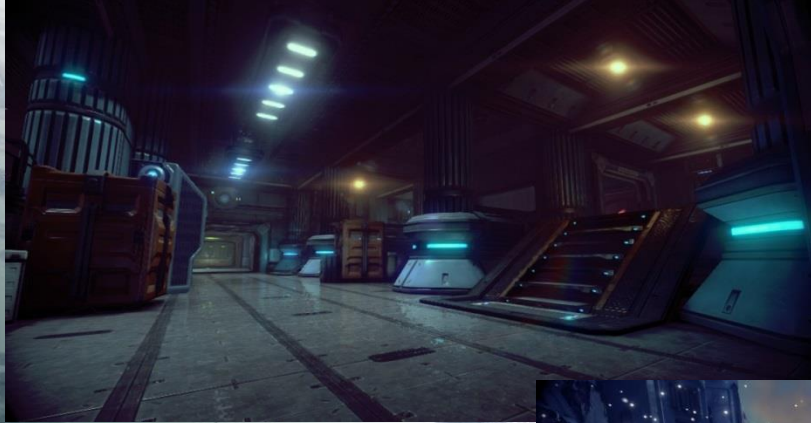
www.warframe.com

What is Warframe?

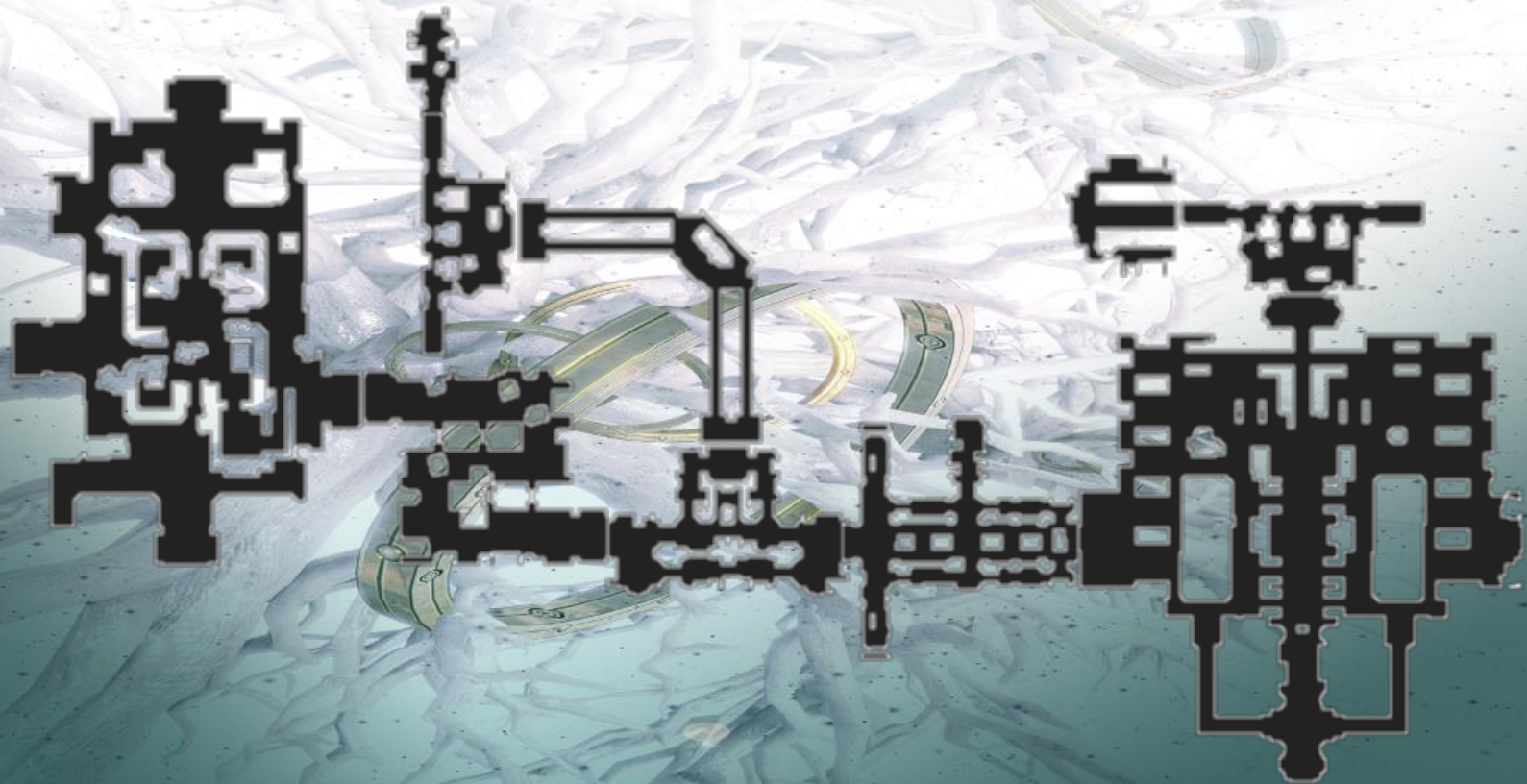
- Fast, action-packed, multiplayer, co-op, 3rd person shooter
- Multiple enemy factions
- Procedural Levels for repeat mission play-throughs
- Players level up their gear and abilities
- Free-to-play allows us to improve and add features and support the community



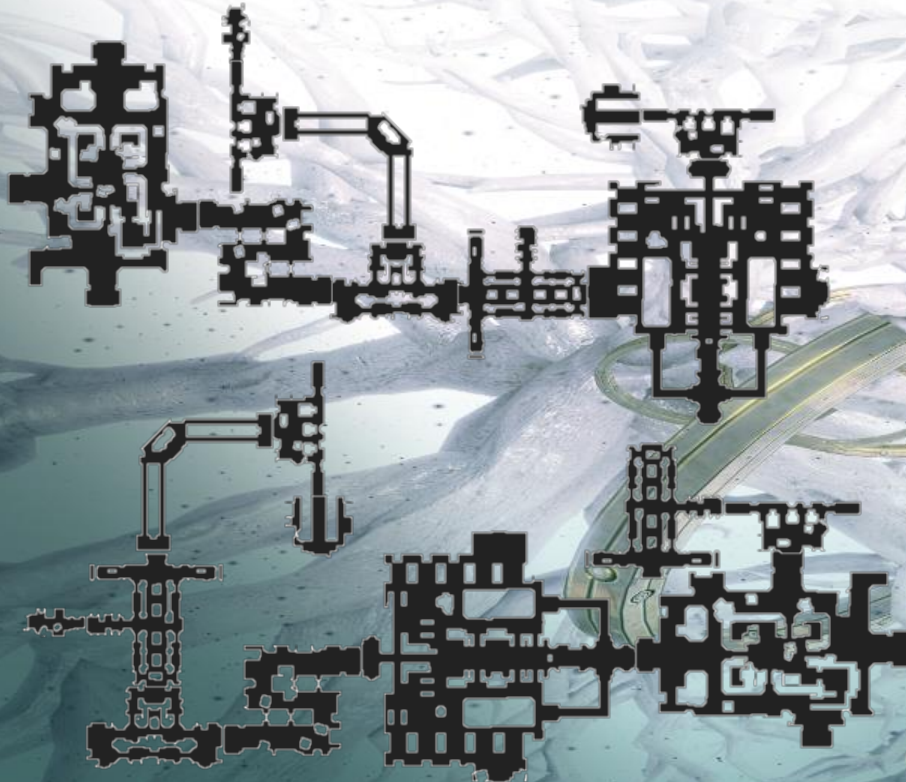
Environments



Procedural Levels

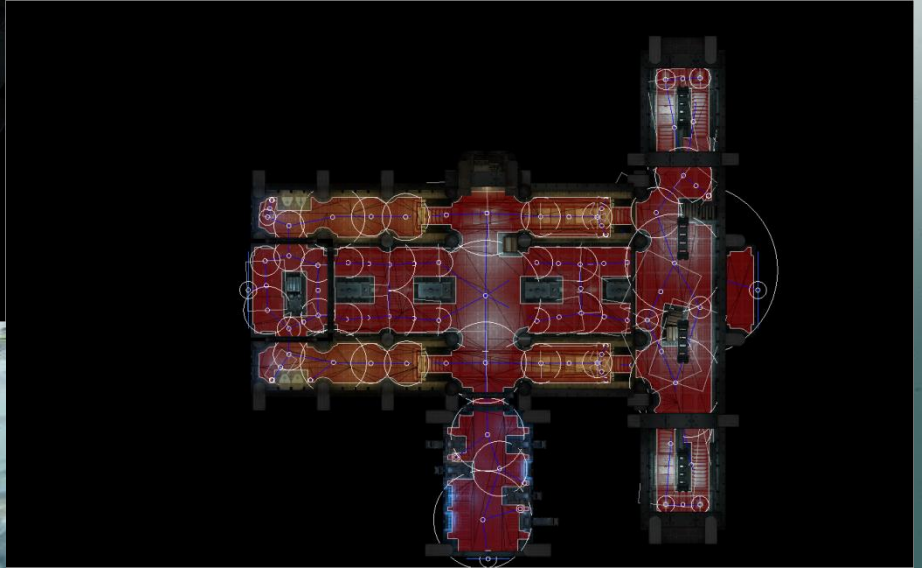
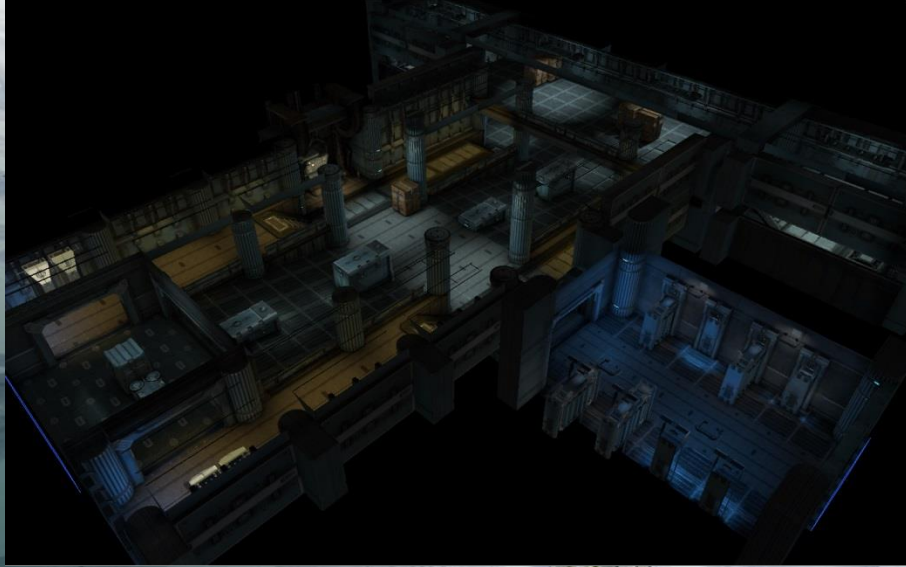


Procedural Problems

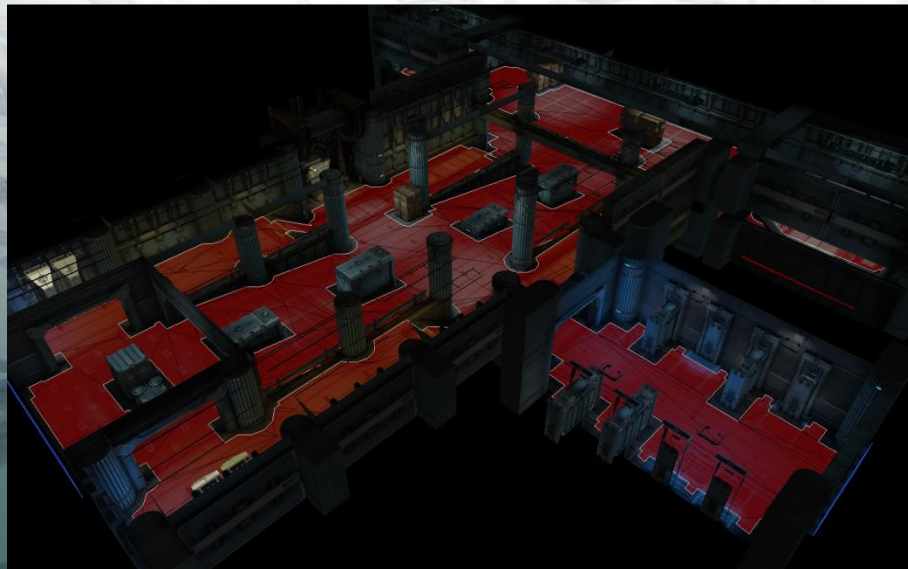


- The blocks can be rotated and linked together in any order
- We don't know ahead of time which route through each block the players need to take
- The same block can appear multiple times in the layout
- We can't rely on the usual triggered spawns and scripted encounters

Tac Area Map



Tac Area Map Creation



Distance From Nav Edges

Find Ridges

Consolidate Areas and Corridors



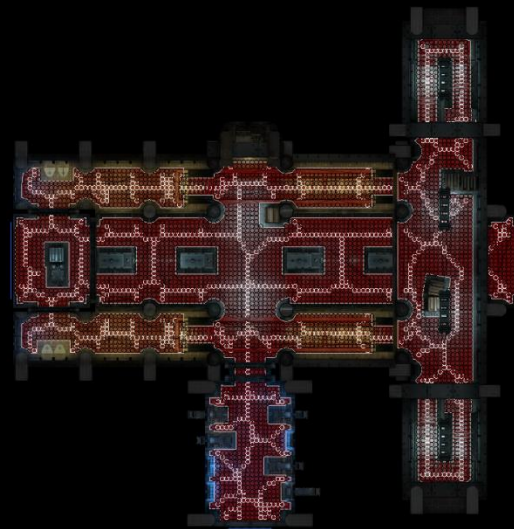
Tac Area Map Creation



Distance From Nav Edges

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Consolidate Areas and Corridors



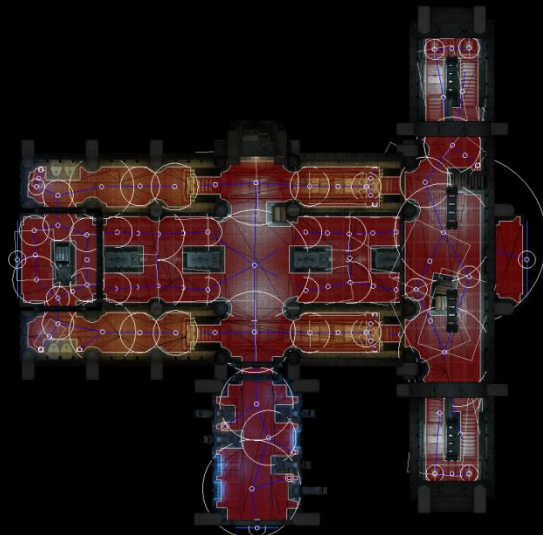
Tac Area Map Creation



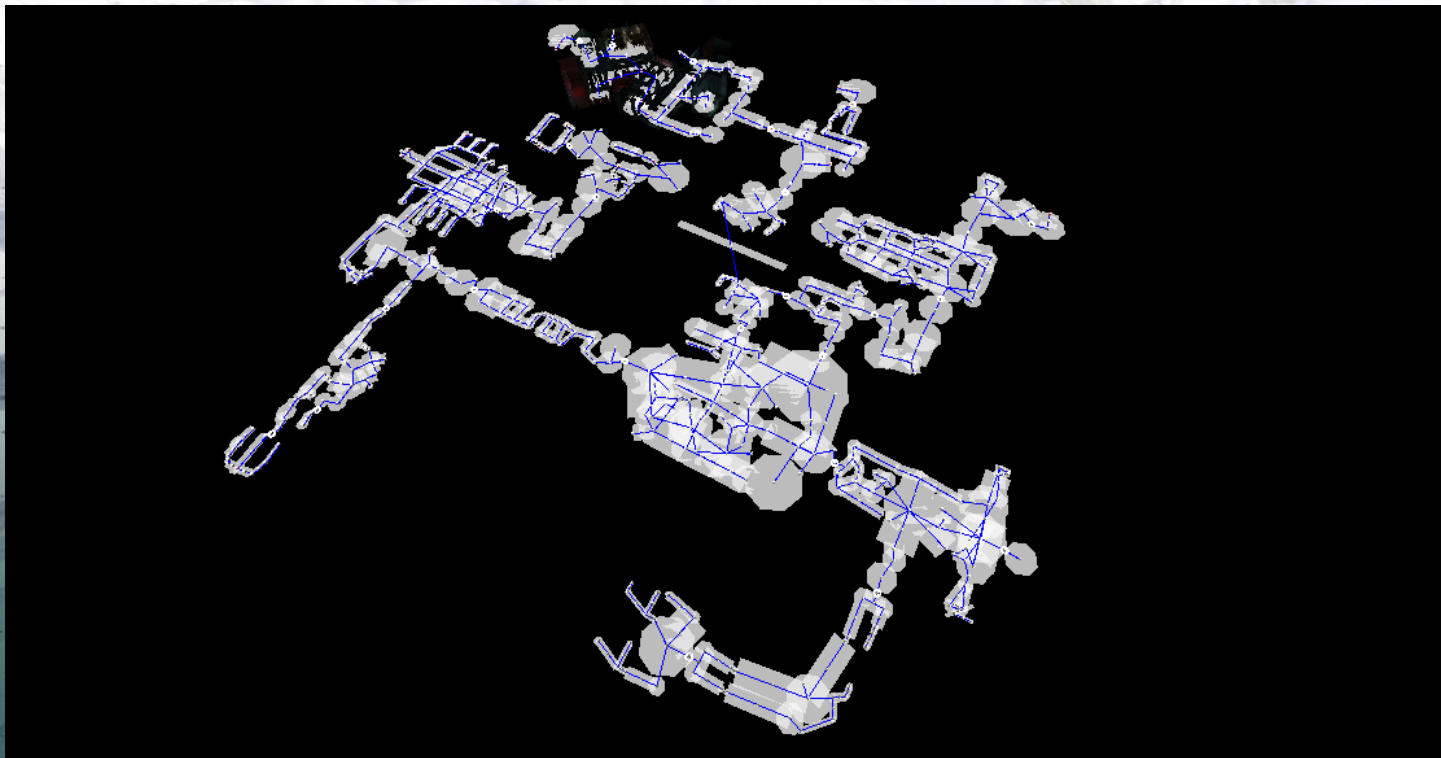
Distance From Nav Edges

Find Ridges

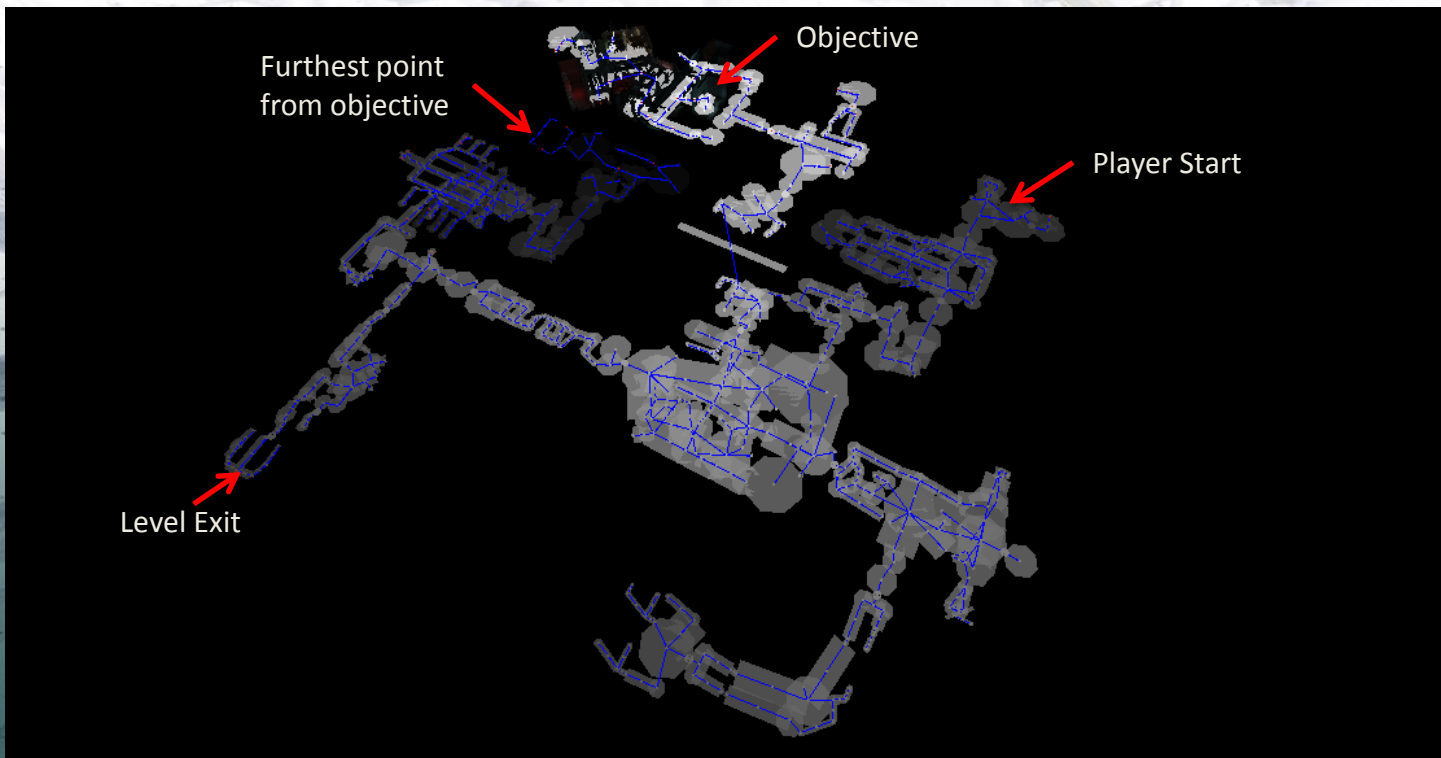
Consolidate Areas and Corridors



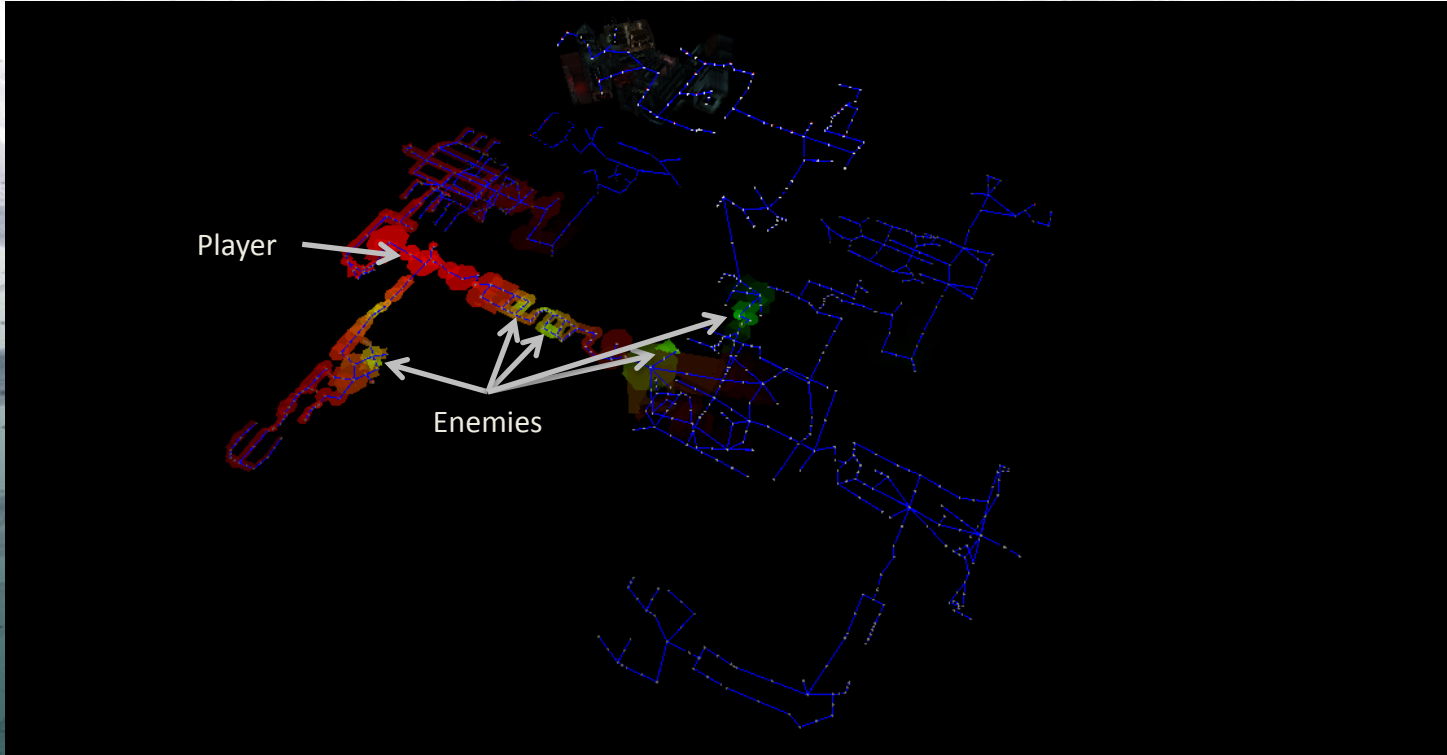
Runtime Tac Area Map



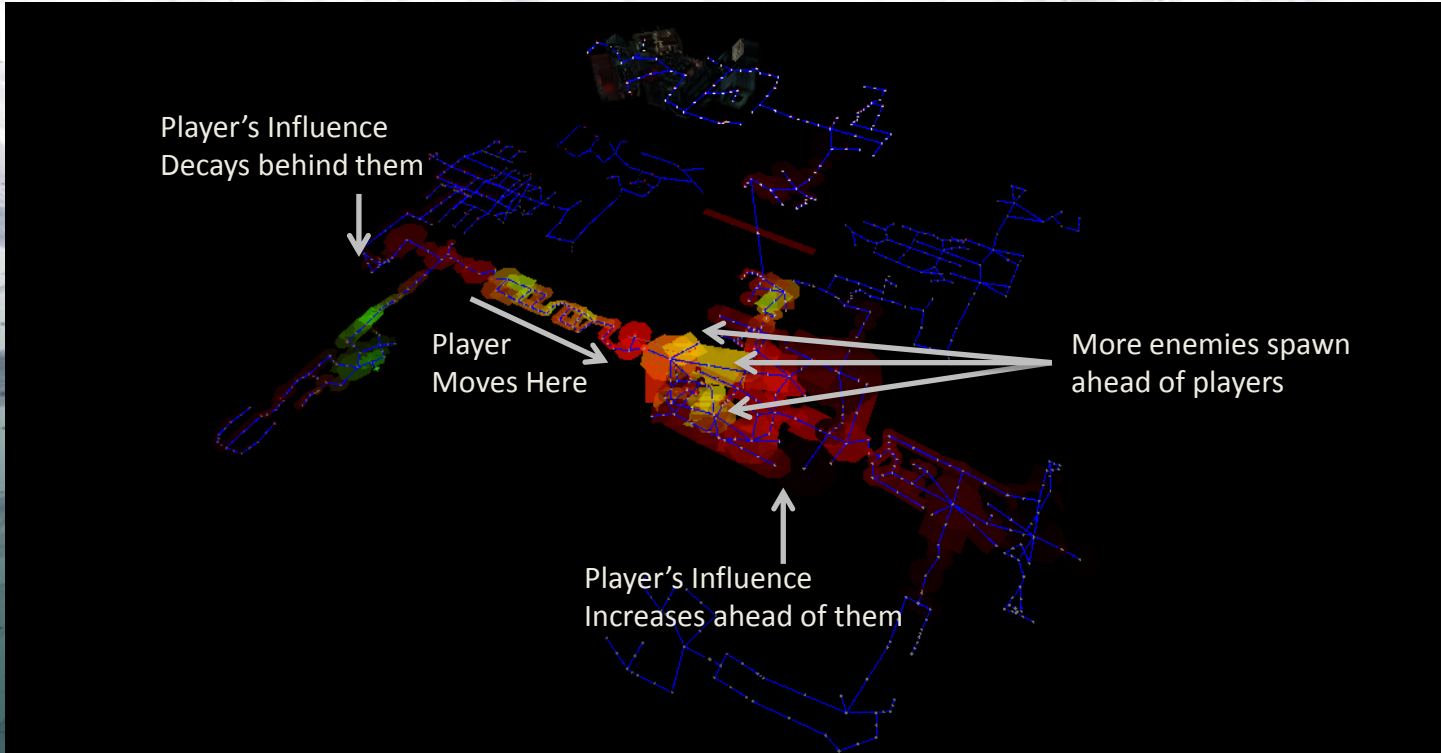
Distance Map



Influence Map



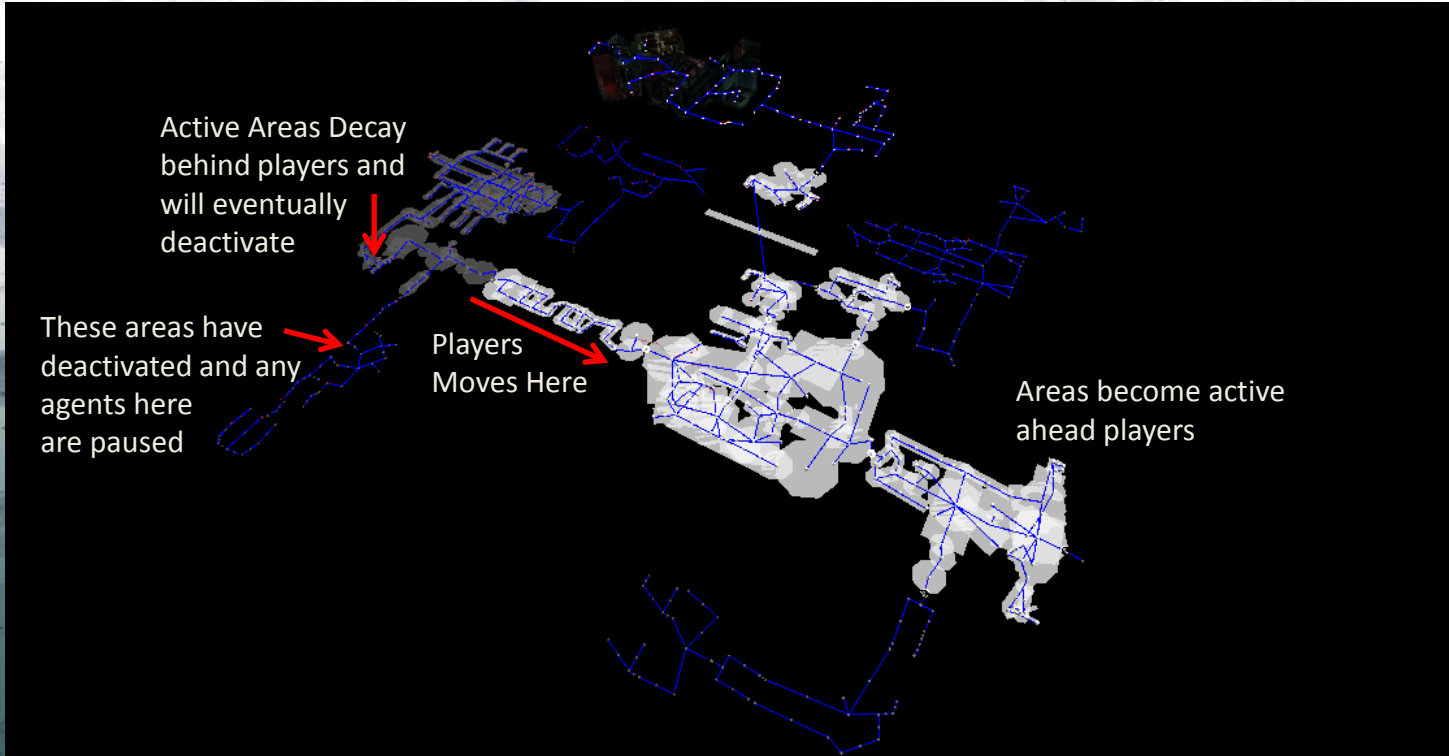
Influence Map



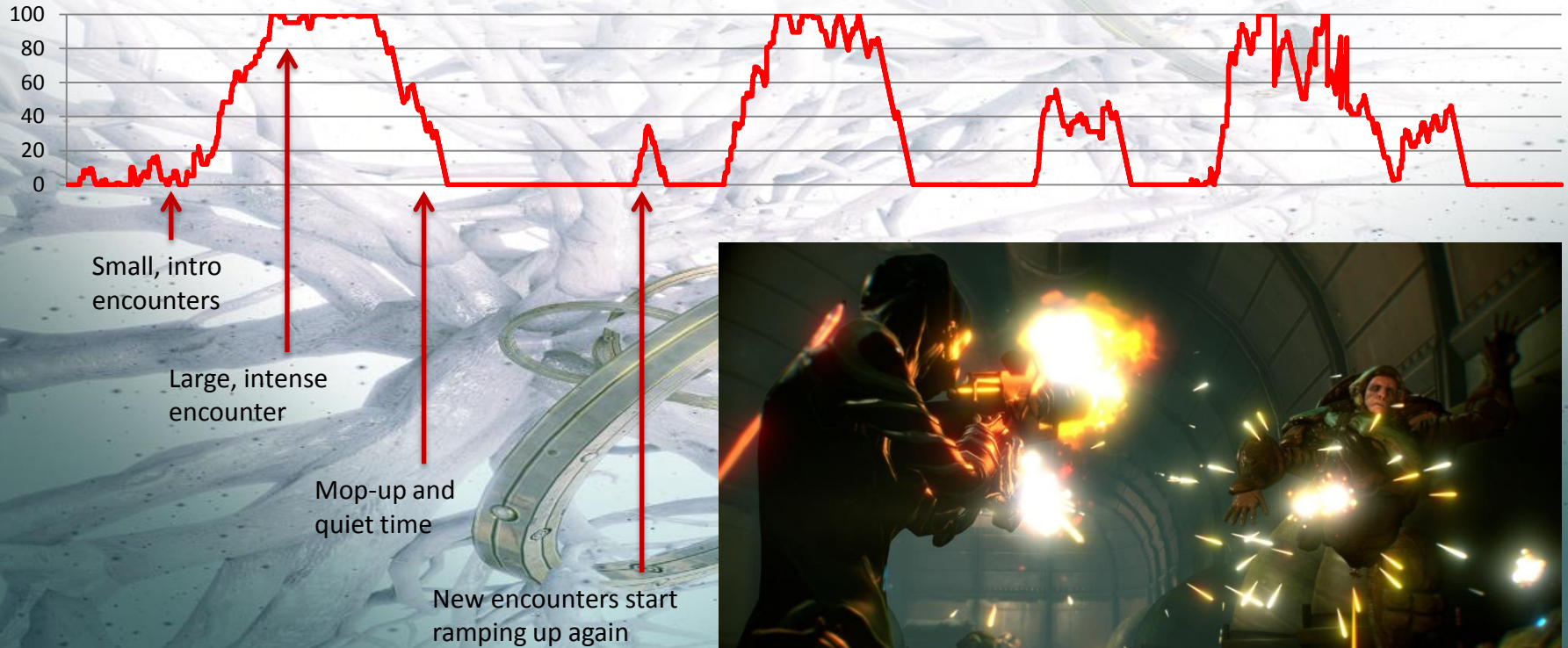
Active Area Set



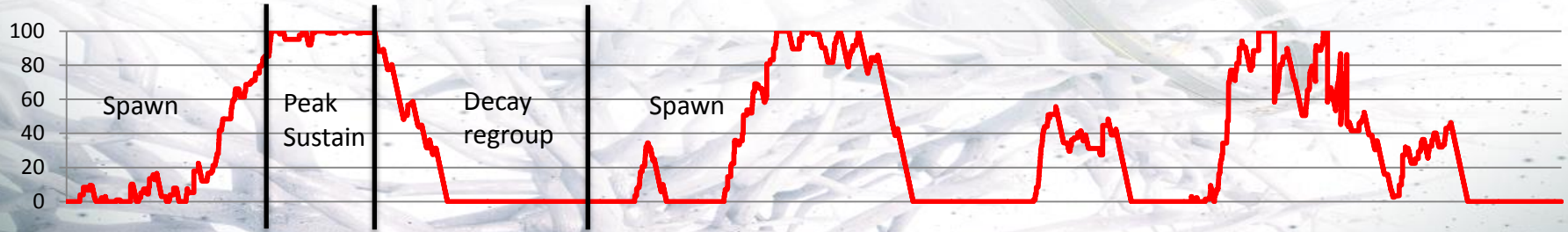
Active Area Set



Pacing Roller Coaster

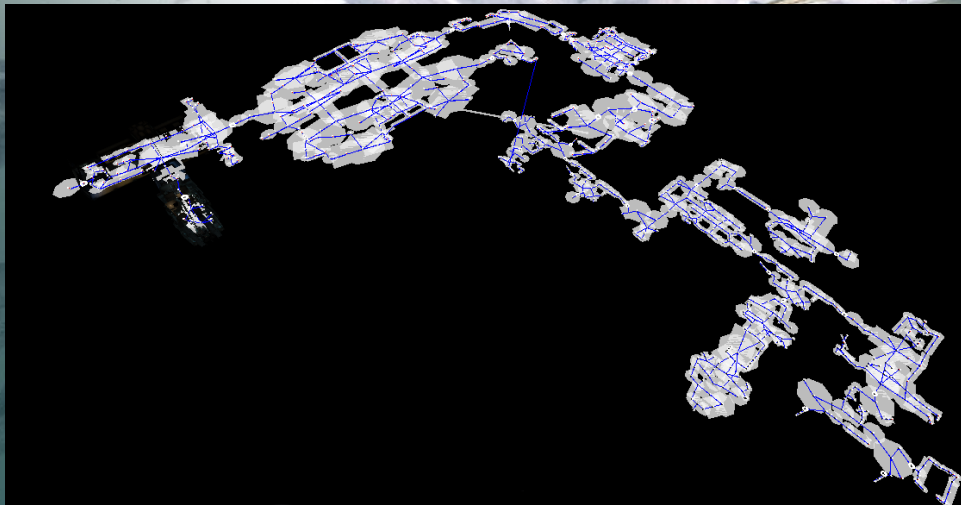
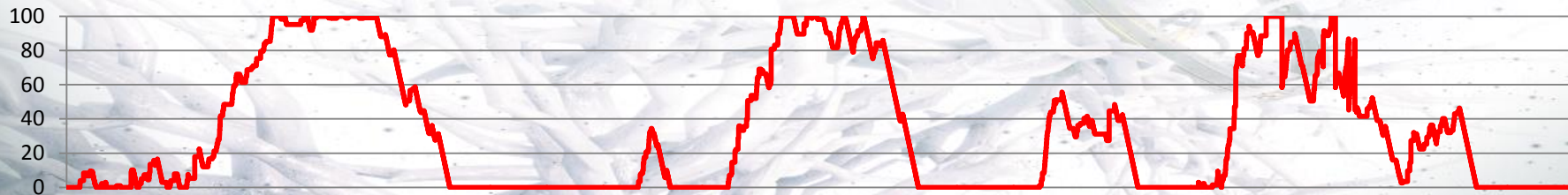


Player Intensity

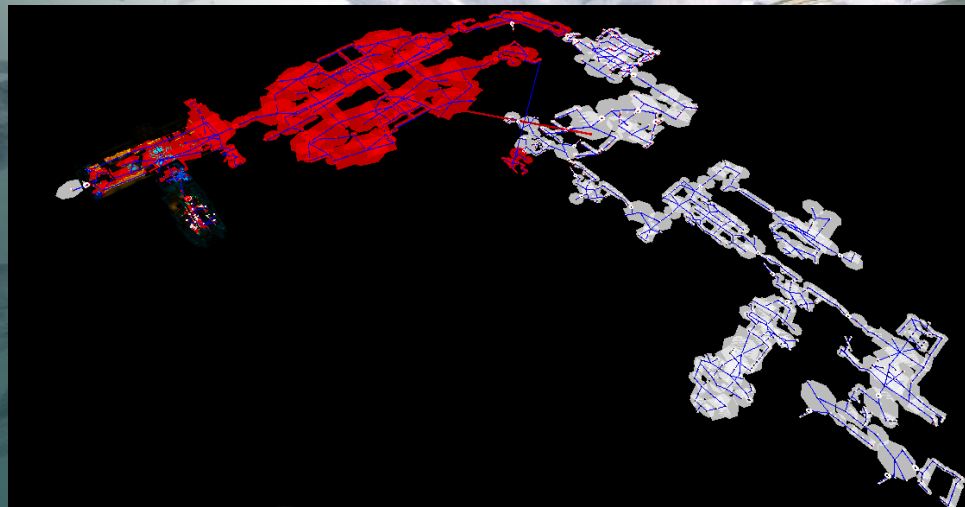
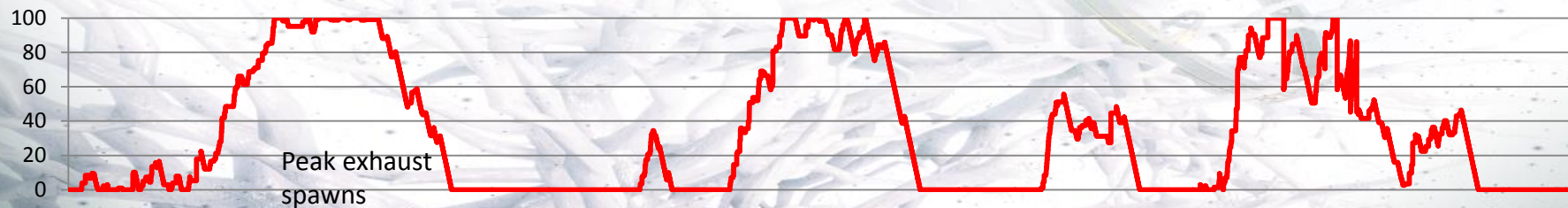


- Normalized damage to player
- Number of enemies killed nearby
- Scales as player power level increases

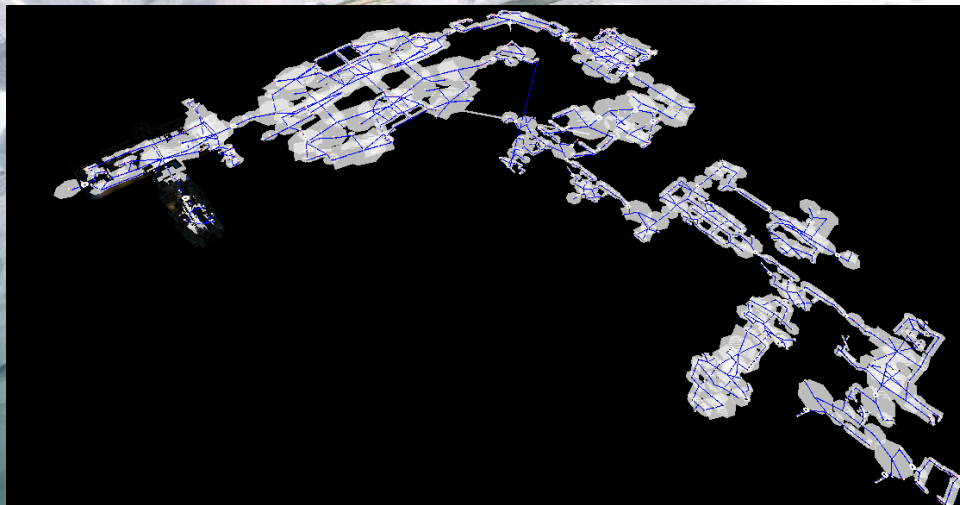
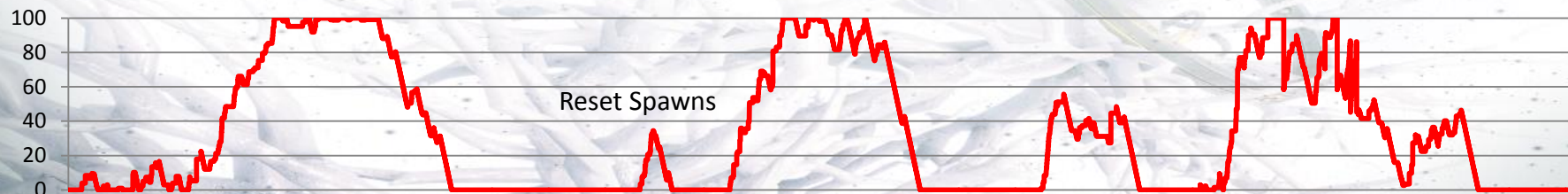
Room Clearing



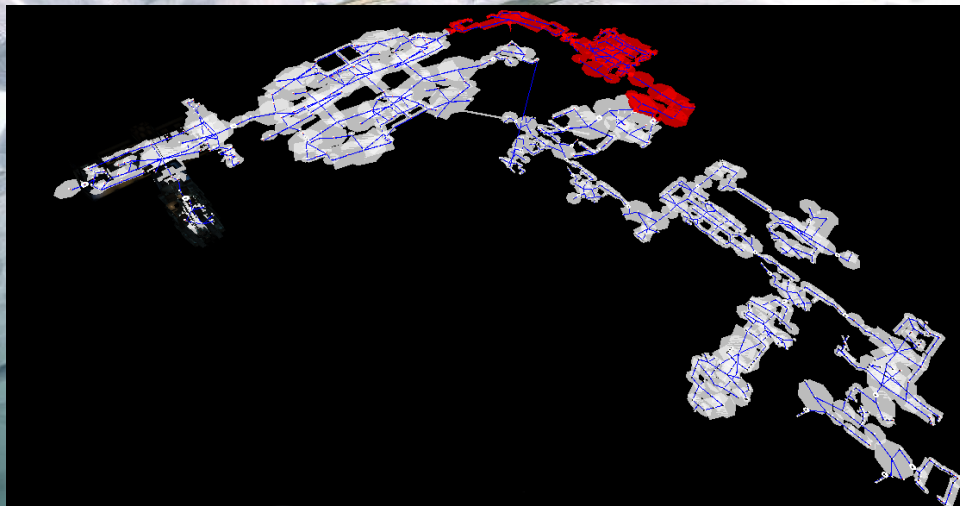
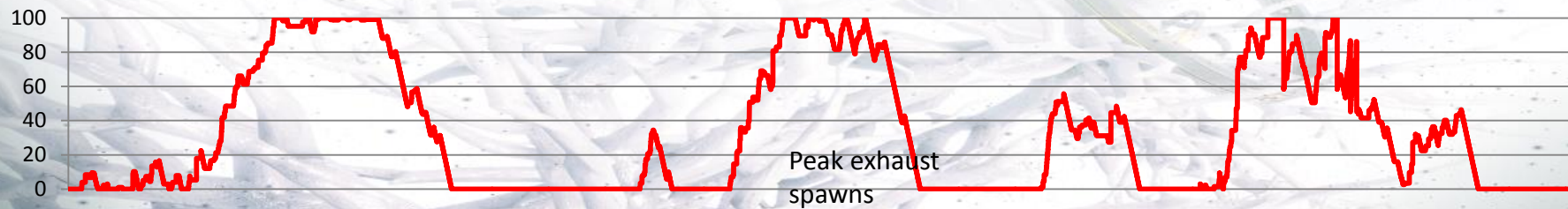
Room Clearing



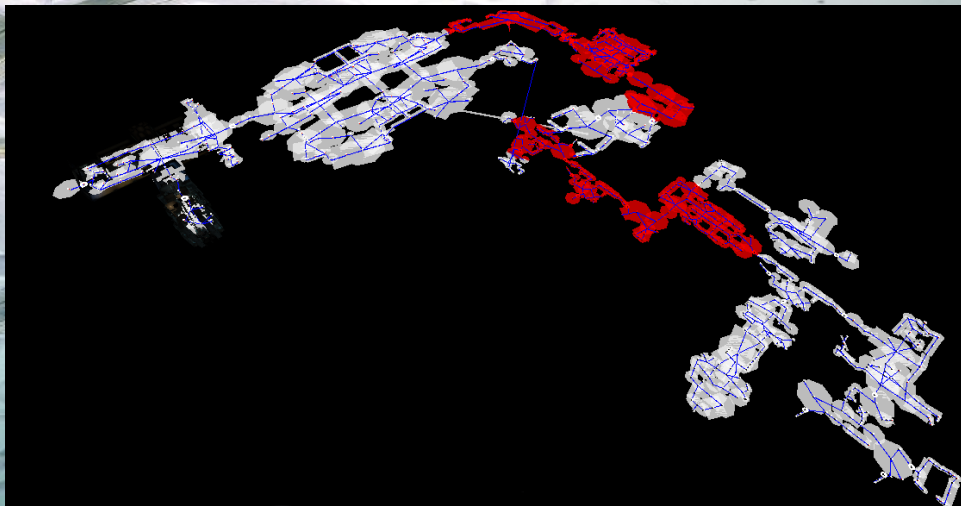
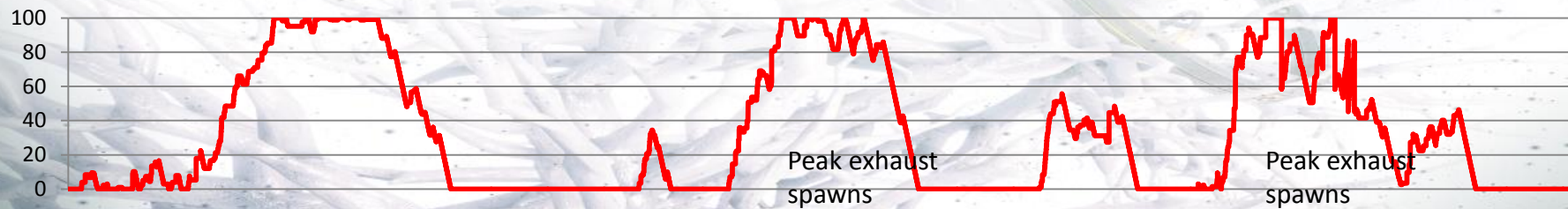
Room Clearing



Room Clearing



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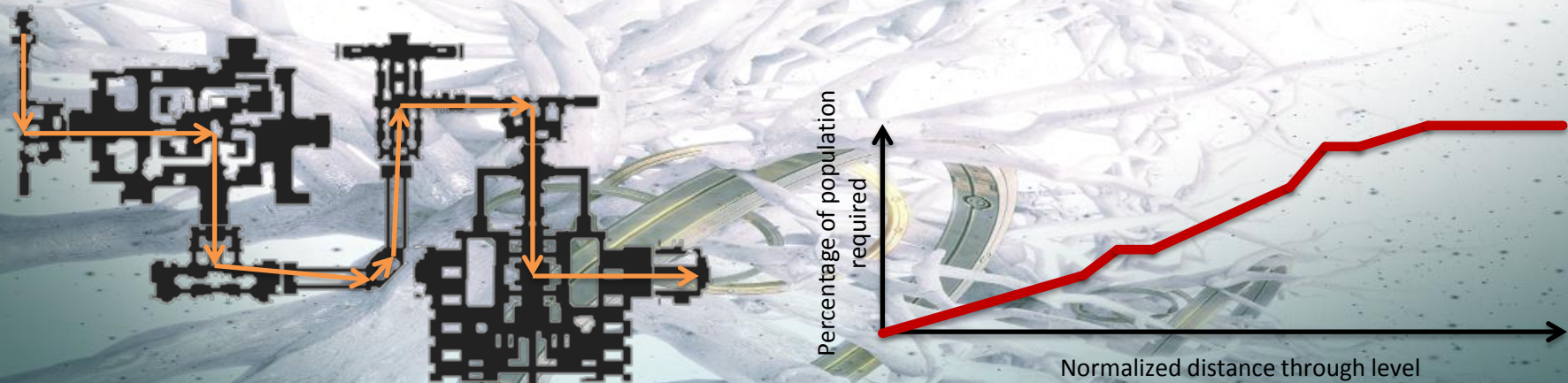


Exterminate Missions

- Linear Gauntlet of enemies
- Must kill a predetermined number of enemies
- The required number of enemies must spawn before the players reach the exit
- For better pacing, we don't want a linear distribution of enemies through the level



Population Graph





Ninjas play free at
www.warframe.com

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