

Software Development Concept – GTA Online Spy Satellite DLC – Main Component Architecture

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Hypothetical DLC concept created for GTA Online. Concept is titled
GTAOnline Spy Satellite DLC.

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Software Design Stage: Completed 12/23/2023 1519.

Watermarkly

Brief Summary of Concept

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New components or new functionality has been created using current in-game components or gameplay found in GTA Online. The components were designed to only require code to enable the functionality or gameplay. That is, the features of the Spy Satellite DLC are designed to require no new or minimal 'outside' code.

The components and subcomponents of the Main Architecture were designed from the end-user's perspective without using any code from GTA 5, GTA Online, or other code that may belong to Rockstar Games.

Brief Disclaimer

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This software development project is a sample presentation for interview purposes. The goal is to highlight my PowerPoint development skills as well as a few skills assumed of software engineers.

I assume each company or software engineer has their own way of flowcharting software before moving to the 'Coding Stage'. I have found PowerPoint to be incredibly useful for creating software flowcharts. Accessing this presentation through my LinkedIn page (or any other way) does not give you the permission to distribute it nor claim it as your own work.

I am the sole developer of this DLC concept. No code from GTA Online nor Rockstar Games was used in the making of this document. Concept created solely from the end user's perspective. Please do not distribute this presentation or claim it as your own.

The DLC concept that is featured in this software development document is fictional. Since it is intended for GTA Online, a game that is owned by Rockstar Games, it will feature some aspects or concepts of their game to help me illustrate the DLC concept I am proposing.

Any imagery that is owned by Rockstar Games, is only used by me for educational purposes, to help explain a concept that I am proposing. No relation to Rockstar Games nor GTA Online should be assumed by the reading or creation of this fictional DLC concept for GTA Online.

No type of illegal or unauthorized modification to GTA Online is being proposed in this document. I am only reusing certain aspects of their game in a hypothetical manner. I am also including other components for addition into GTA Online.

Any other images found in this document are used solely for educational purposes and are property of their respective owners. Thank you.

Sincerely,

Ed Orejel, MSCS



Vision Statement

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This concept can work for GTA Online because of how GTA was designed. Currently, all the players have an in-game cell phone. The assumption is that the players receive cell phone access to play the game. There is no clear indication on where the cell phone access comes from. Thus, we can assume the cell phone access is given to the players by a phone company in San Andreas. The phone company is implied and the connection between the telephone company in San Andreas and the players is implicit. San Andreas is supposed to resemble the state of California.

It is implied that the phone company uses satellites to communicate. This relationship is tenuous because, ultimately, we do not know where the player's cell phone access comes from. It is safe to assume, the connection is subject to interpretation with players left with the belief that this is just the way it is in GTA Online.

A spy satellite can be included in GTA Online. The addition of a spy satellite will make the relationship between telecommunications and the player's cell phone explicit. Further, the players can receive access to new and robust ways to play the game. The access ranges from new ways of hacking into systems, to new smart and high-tech vehicles and even new types of smart ammunition.

A final design of potential components that can be enabled with the addition of a spy satellite has been included. The components align well with GTA Online's overall style of gameplay. The component design has been finalized, but I am the only developer that created this concept. Other developers, for example, developers from Rockstar Games, might be able to design different components if they are given a spy satellite.

Vision Statement Expanded – New Additions to GTA Online – The Shadow Hacker Group

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Shadow Hacker Group



The Shadow Hacker group will provide various services to the player through the spy satellite. The services are categorized as follows:

- Hacking
- Attacking
- Defending

The Shadow Hacker Group and the Military Group are included with the Spy Satellite DLC because of the overall theme of the DLC. The two groups are different because of the nature of their abilities to identify targets or collect covert surveillance, for example.

A Shadow Hacker Group will use sophisticated and covert means to conduct their operations. This could mean using simple technology in never before seen ways, and they will do this while stationed miles away, using a connection to a spy satellite.

Vision Statement Expanded – New Additions to GTA Online – The Military Group

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Military Group



- The Military group will also provide various services to the player through the spy satellite. The services are categorized as follows:
- Military Services
 - Military Weapons

A Military Group will use the spy satellite in a way that is different from a Shadow Hacker Group, but the manner in which the Military Group uses a spy satellite, is useful.

The usage of the spy satellite by the two groups is so distinct, that it was easier to create two separate entities for GTA Online that would be given access to the spy satellite.

Thus, the Military Group would use typical military weapons and tactics provided by the spy satellite. The Shadow Hacker Group would use atypical weapons and tactics provided by the spy satellite. The former group's methods are for conventional warfare, presumably. The latter group's methods are for permanent or long term asymmetrical warfare, including asymmetrical information (intelligence) gathering.

For more specific details about the components of each group that will interact with the player, please view the slide titled *Conceptual Overview of Spy Satellite Services – Top-Level Component View – All Services* in this presentation.

Vision Statement Expanded – New Additions to GTA Online – The Spy Satellite

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The Spy Satellite



In the real world, a shadow hacker group, and the military, would use the spy satellite in a similar way, but for different purposes. The end-use of the spy satellite by the two groups, thus, is so distinct, that it was easier to create two separate entities for GTA Online that would be given access to the spy satellite.

Thus, the Military Group would use typical military weapons and tactics provided by the spy satellite. The Shadow Hacker Group would use atypical weapons and tactics provided by the spy satellite. The former group's methods are for conventional warfare, presumably. The latter group's methods are for permanent or long term asymmetrical warfare, including asymmetrical information (intelligence) gathering.

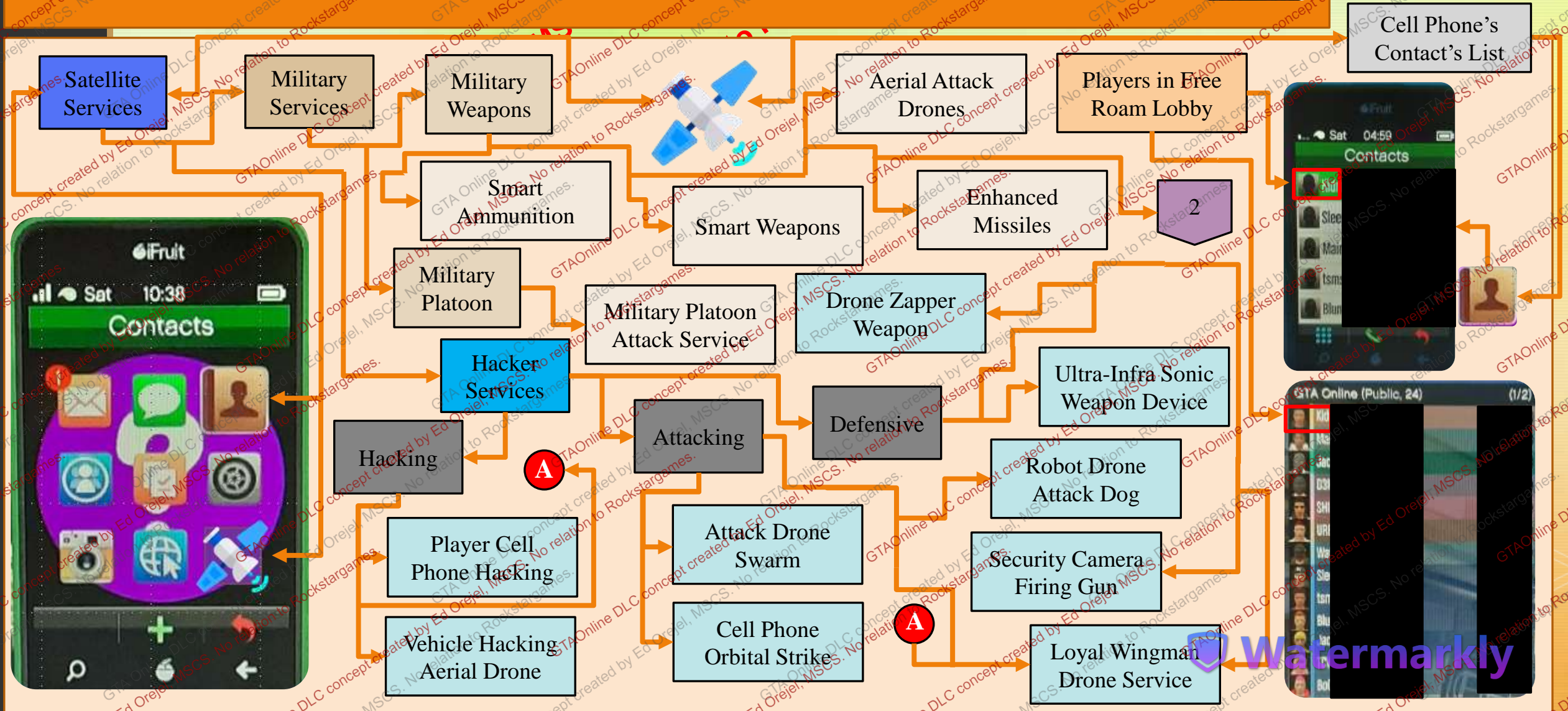
For more specific details about the components of each group that will interact with the player, please view the slide titled *Conceptual Overview of Spy Satellite Services – Top-Level Component View – All Services* in this presentation.



Conceptual Overview of Spy Satellite Services – Top-Level Component View – All Services



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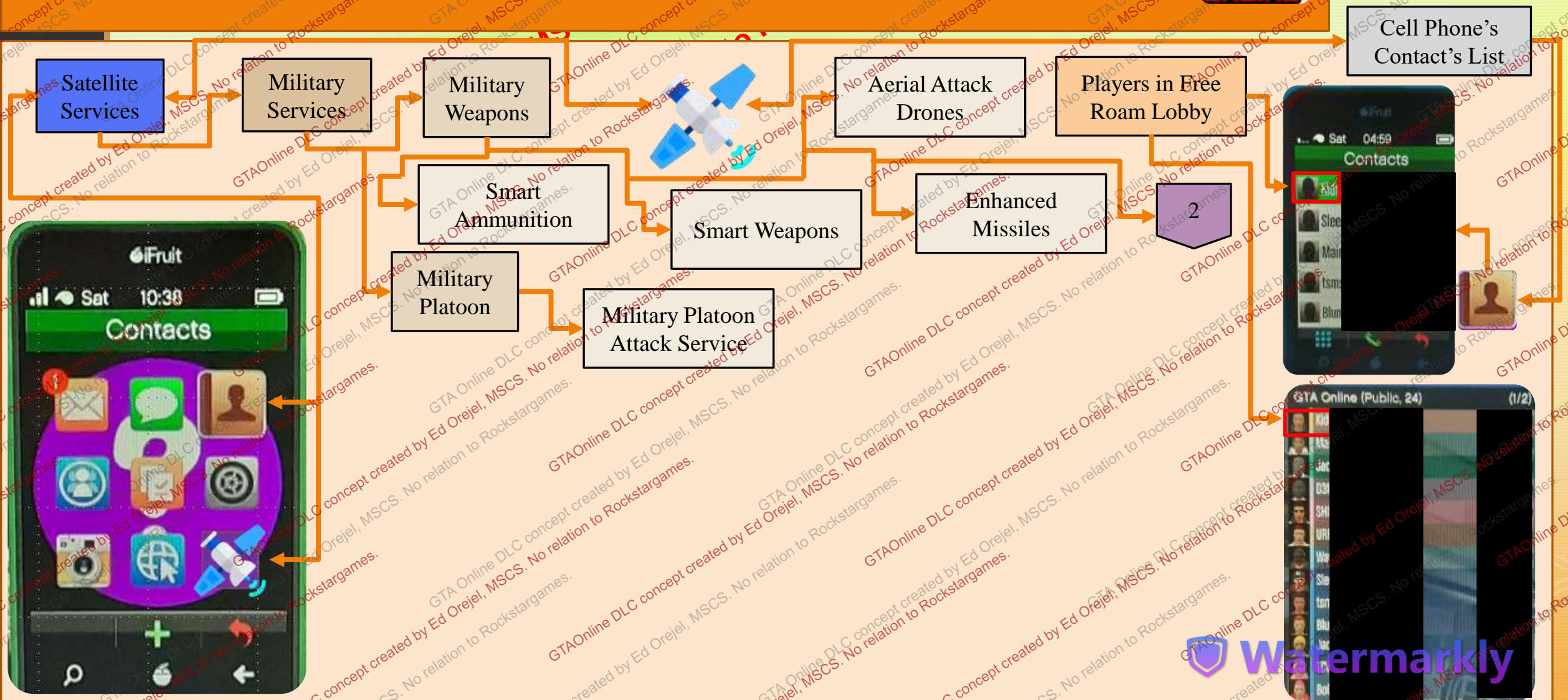




Conceptual Overview of Spy Satellite Services – Top-Level Component View – All Services – Military Services



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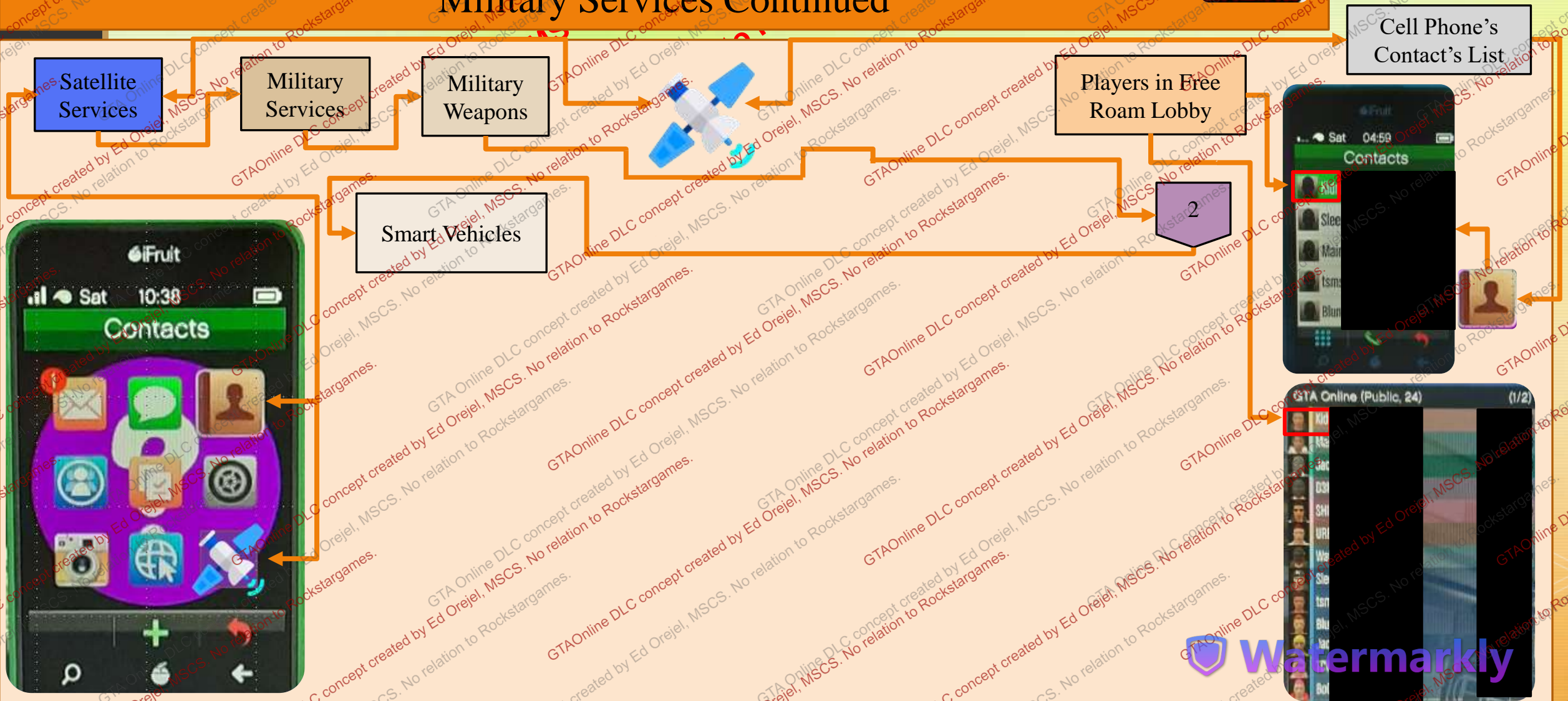




Conceptual Overview of Spy Satellite Services – Top-Level Component View – All Services – Military Services Continued



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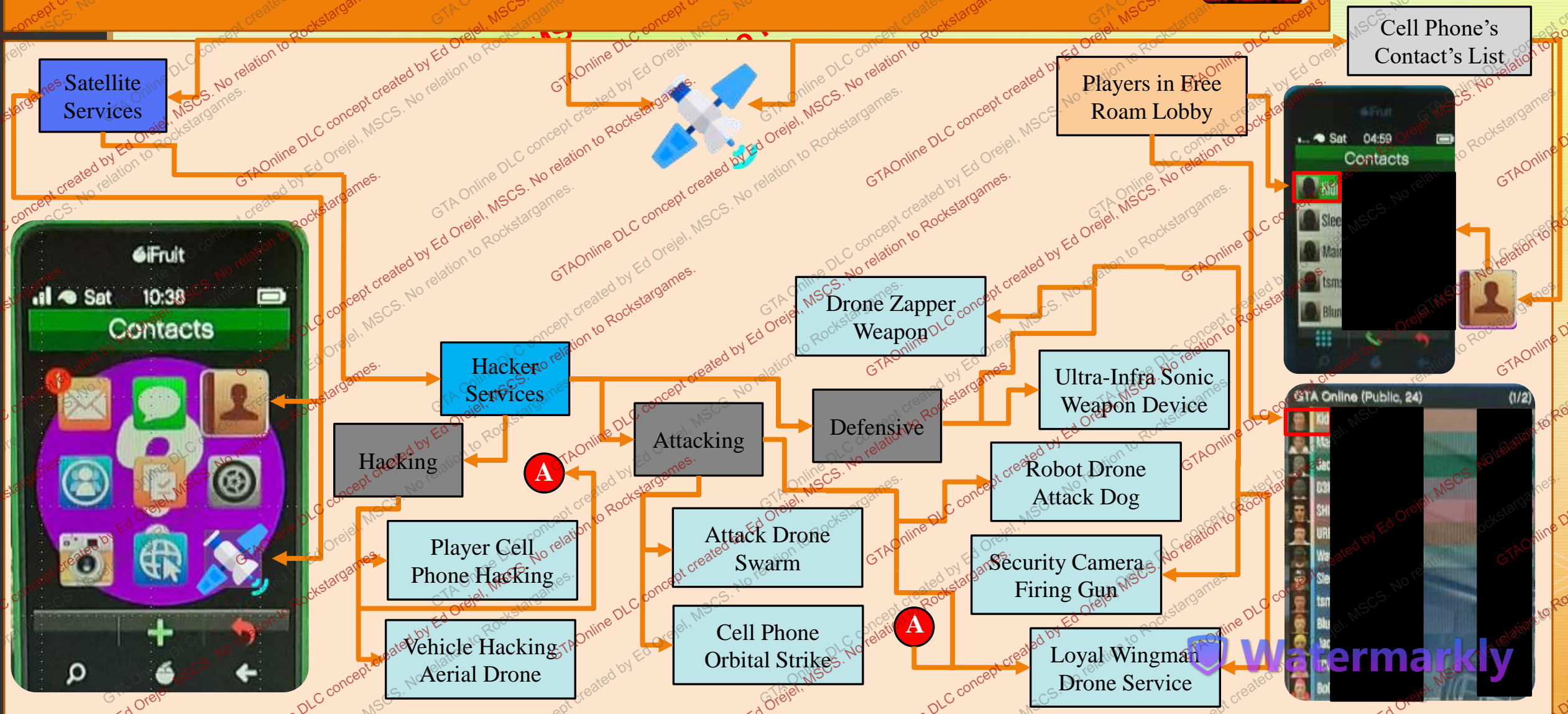




Conceptual Overview of Spy Satellite Services – Top-Level Component View – All Services – Hacker Services

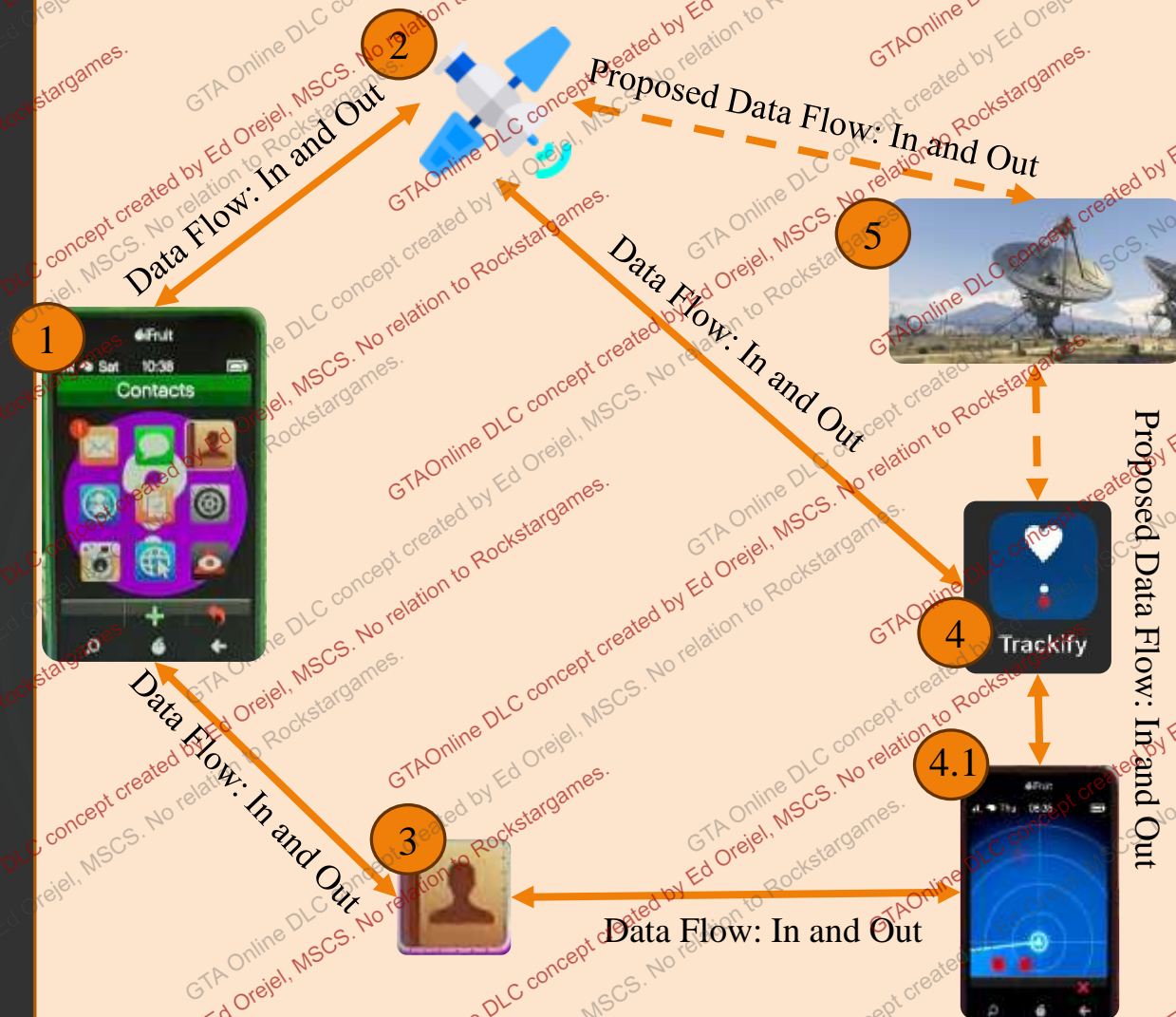


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Radar and Targeting System Data Flow – Hardware and Software Component Connection – Main Components Connected

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This flowchart shows the relationship that I am proposing with current in-game components. The purpose of organizing the components this way, is to create a new piece of technology in the game. The technology is in the form of a radar and targeting mechanism that will be created by the addition of a spy satellite.

The radar detection and targeting mechanism is created using the following in-game components:

1. The player's in-game cell phone.
2. The newly added spy satellite.
3. The cell phone's Contact's List.
4. Trackify cell phone icon.
 - 4.1 A radar system like GTA Online's Trackify App.
5. Satellite Relay Station located in Grand Senora Desert, Blaine County (optional).

The main function of the spy satellite is to provide GPS latitude and longitude coordinate data of the player's current location, anywhere in the free roam lobby, if the player is not indoors. GPS data of the player will also be tracked while underwater or out in the ocean.

The spy satellite and radar tracking system will allow other new technology to be used in the game.

Radar and Targeting System Data Flow – Actual Data Flow Between Connected Components

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This flowchart presents the actual data flow between components, once the spy satellite is launched into orbit.

The radar detection and targeting mechanism is created using the following in-game components:

1. The player's in-game cell phone.
2. The newly added spy satellite.
 - 2.1 The spy satellite connected to the in-game cell phone with an icon.
3. The cell phone's Contact's List.
4. Trackify cell phone icon.
 - 4.1 A radar system like GTA Online's Trackify App.

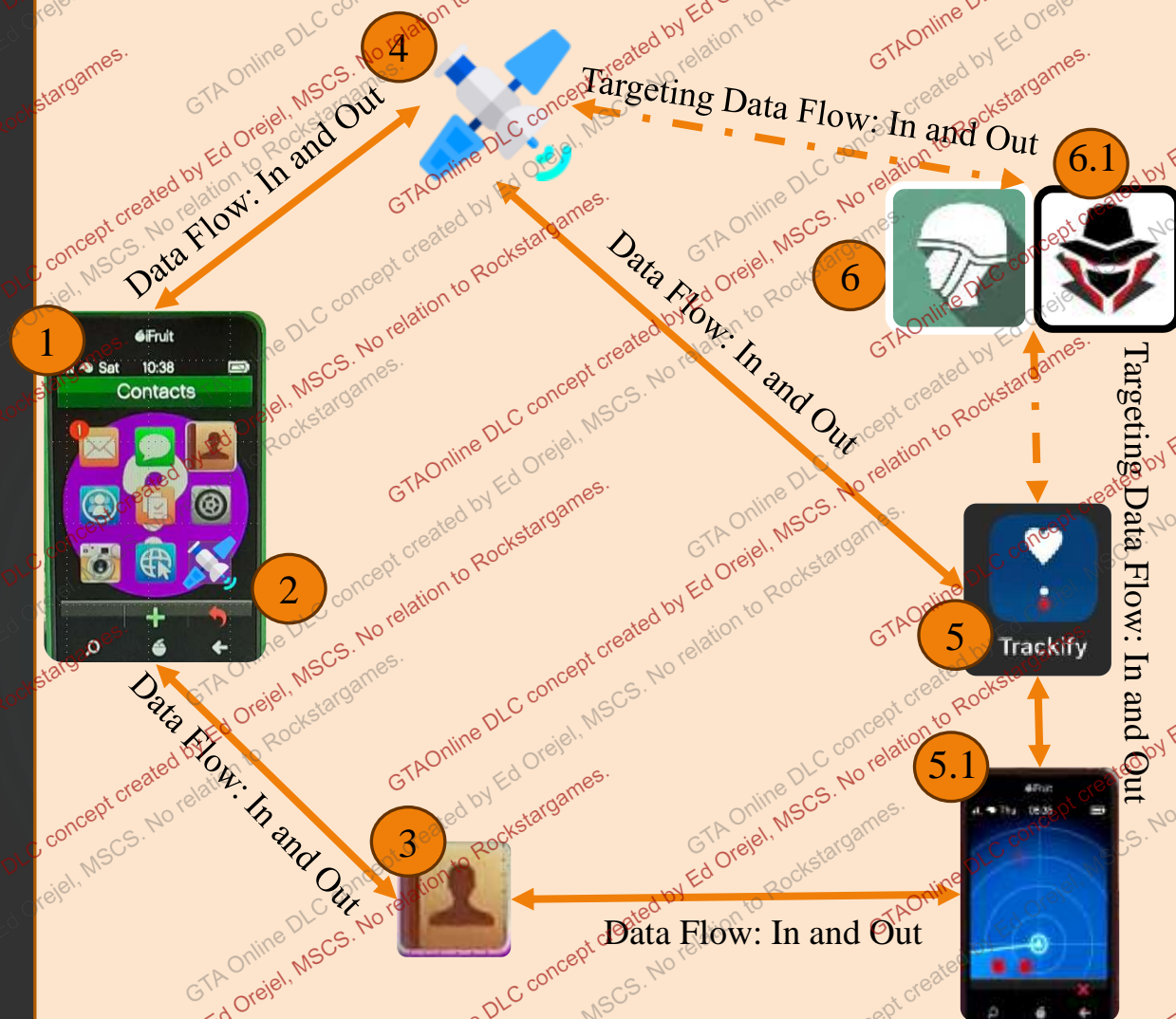
Players in GTA Online use their cell phone, but it is assumed that the service to the cell phone will always have a connection, if the player maintains a cash balance in the game.

If players use a cell phone in the game, then the cell phone can receive a satellite signal or some other type of signal to maintain connectivity.

A spy satellite connection to the cell phone could be created, and new in-game features could be enabled from the spy satellite.

Radar and Targeting System Data Flow – Targeting Data Flow Between Components – Spy Satellite Services Included

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Once the components are assembled, the smart weapons would receive data from the spy satellite in the form of GPS latitude and longitude coordinates of the player's cell phone.

1. The player's in-game cell phone.
2. The spy satellite linked to the in-game cell phone.
3. The mobile phone's Contact's List.
4. The newly added spy satellite.
5. Trackify cell phone icon.
- 5.1 A radar system like GTA Online Trackify App.
6. Military services and (6.1) Hacker services will receive cell phone data.

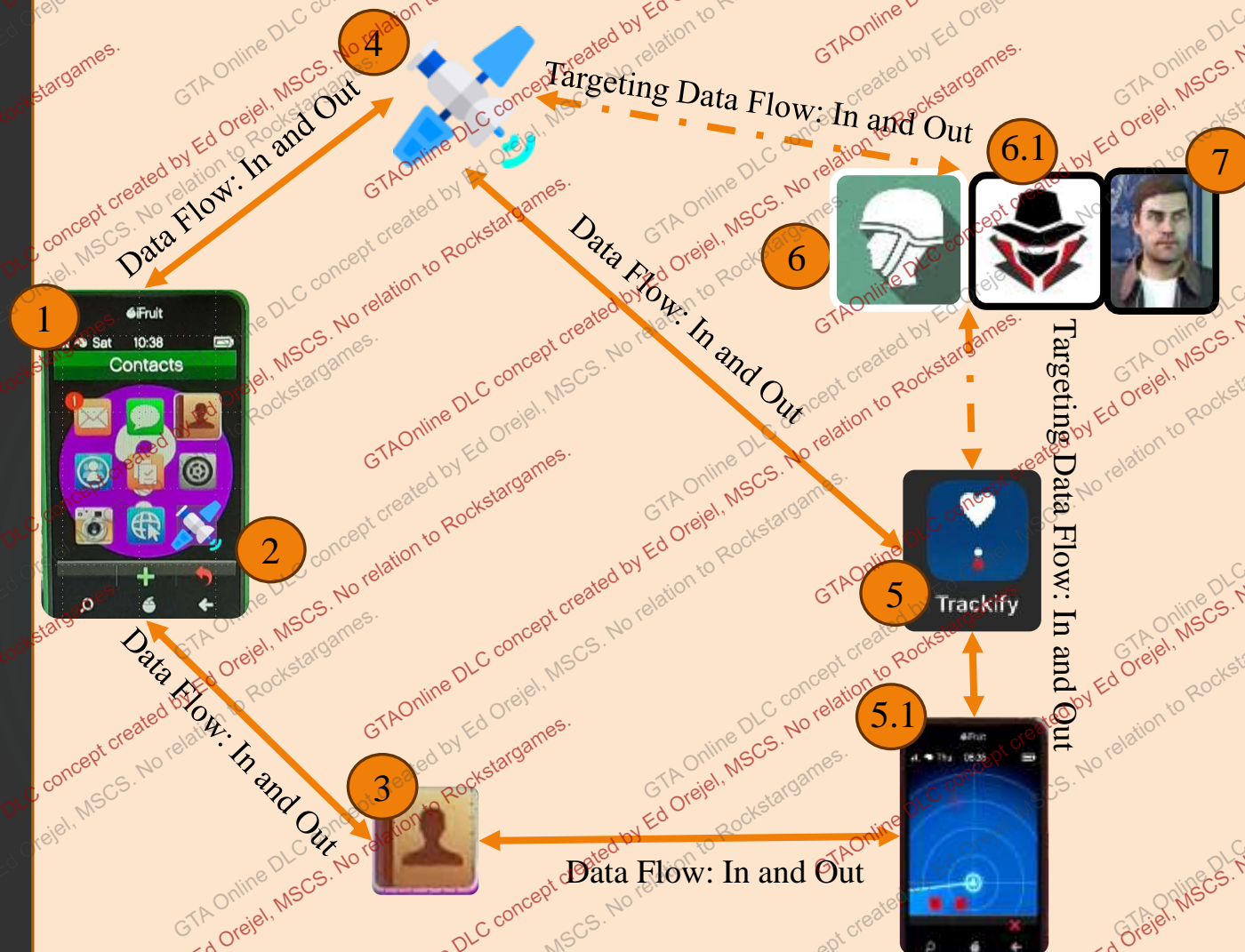
The smart ammunition fired from the smart weapons would be able to attack enemies that are hiding in hard-to-reach areas.

The smart weapons would be able to fire smart ammunition that would be guided by the spy satellite, to hit an enemy anywhere in the map, even if the enemy is in any type of vehicle or hiding in between houses or apartment buildings.

The spy satellite in conjunction with the smart ammunition, would have artificial intelligence (AI) that would adjust its targeting software in real time, thereby, calculating the best vector of attack.

Enemies are other players in GTA Online or players not in the organization of the attacking player.

Radar and Targeting System Data Flow – Targeting Data Flow Between Components – Spy Satellite Services – Adding Other Services



1. The player's in-game cell phone.
2. The spy satellite linked to the in-game cell phone.
3. The cell phone's Contact's List.
4. The newly added spy satellite.
5. A radar system like GTA Online Trackify App.
5.1 A radar system like GTA Online Trackify App.
6. Military services and (6.1) Hacker services will receive cell phone data.
7. Additional component(s) added: Agent 14.

The design of the system allows for other components to be added and connected to the spy satellite. For example, Agent 14 could be given access to the spy satellite. Once Agent 14 is given access, he can call the players on their mobile phones to see if they want to access other in-game missions offered through the spy satellite.

The spy satellite can also be used to connect and add other types of DLCs.

An "Aquatic DLC" focusing on the billionaire lifestyle of expensive yachts, high-end illegal contraband, and power business deals gone bad could be one of many choices.