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

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

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Software Design Stage: Updated 1/15/2024, 1727

Brief Summary of Concept

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

This software development project is a sample presentation for interview purposes.

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. 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. No relation to Rockstar Games nor GTA Online should be assumed by the reading or creation of this fictional DLC concept for GTA Online.

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

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

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

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

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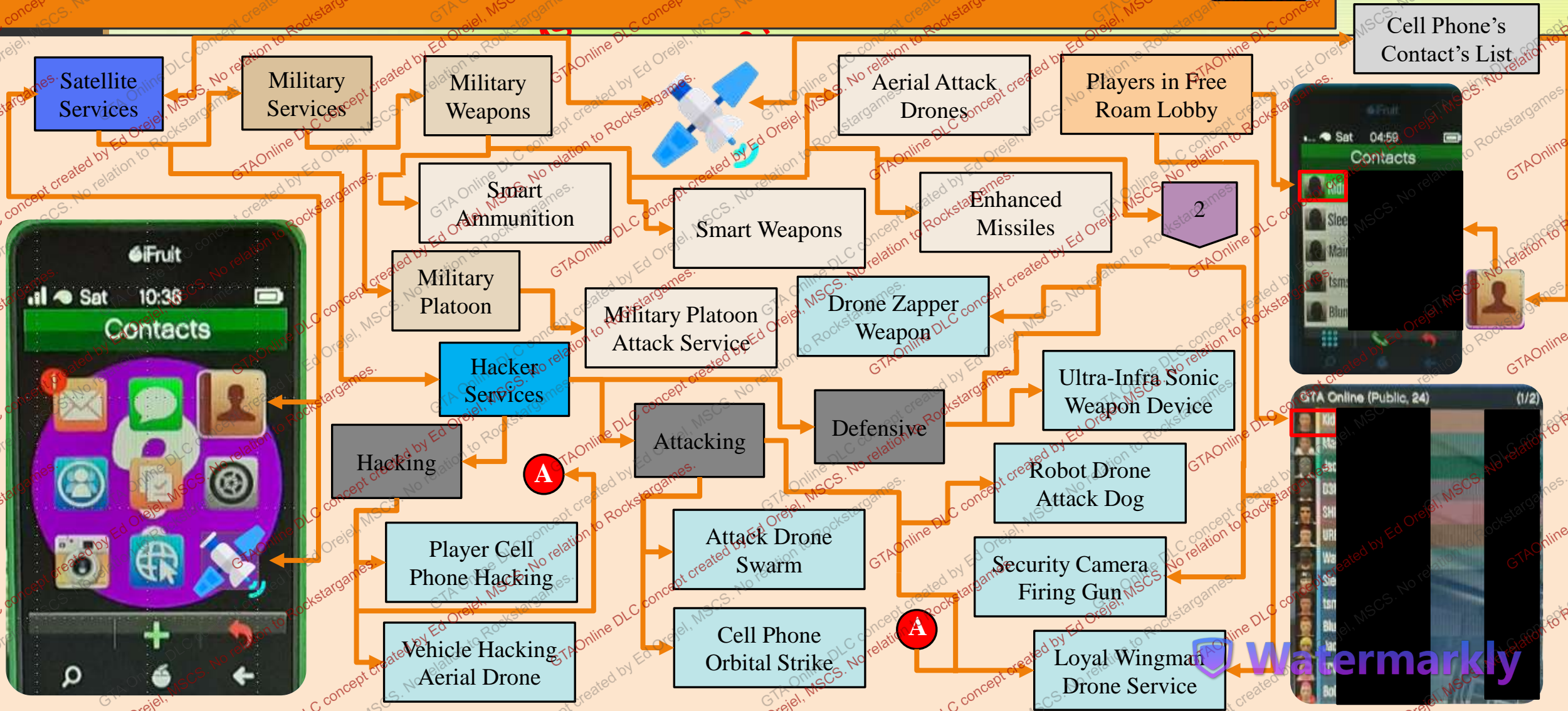
For more specific details about the components of each group that will interact with the player, please view the slide titled *Conceptual Overview of Spy Satellite Services – Top-Level Component View – All Services* in this presentation.

Satellite Services

Military Services

Military Weapons

Aerial Attack Drones

Players in Free Roam Lobby

Cell Phone's Contact's List

Smart Ammunition

Smart Weapons

Enhanced Missiles

2

Military Platoon

Military Platoon Attack Service

Drone Zapper Weapon

Hacker Services

Defensive

Ultra-Infra Sonic Weapon Device

Hacking

Attacking

Robot Drone Attack Dog

A

Security Camera Firing Gun

Player Cell Phone Hacking

Attack Drone Swarm

Vehicle Hacking Aerial Drone

Cell Phone Orbital Strike

A

Loyal Wingman Drone Service

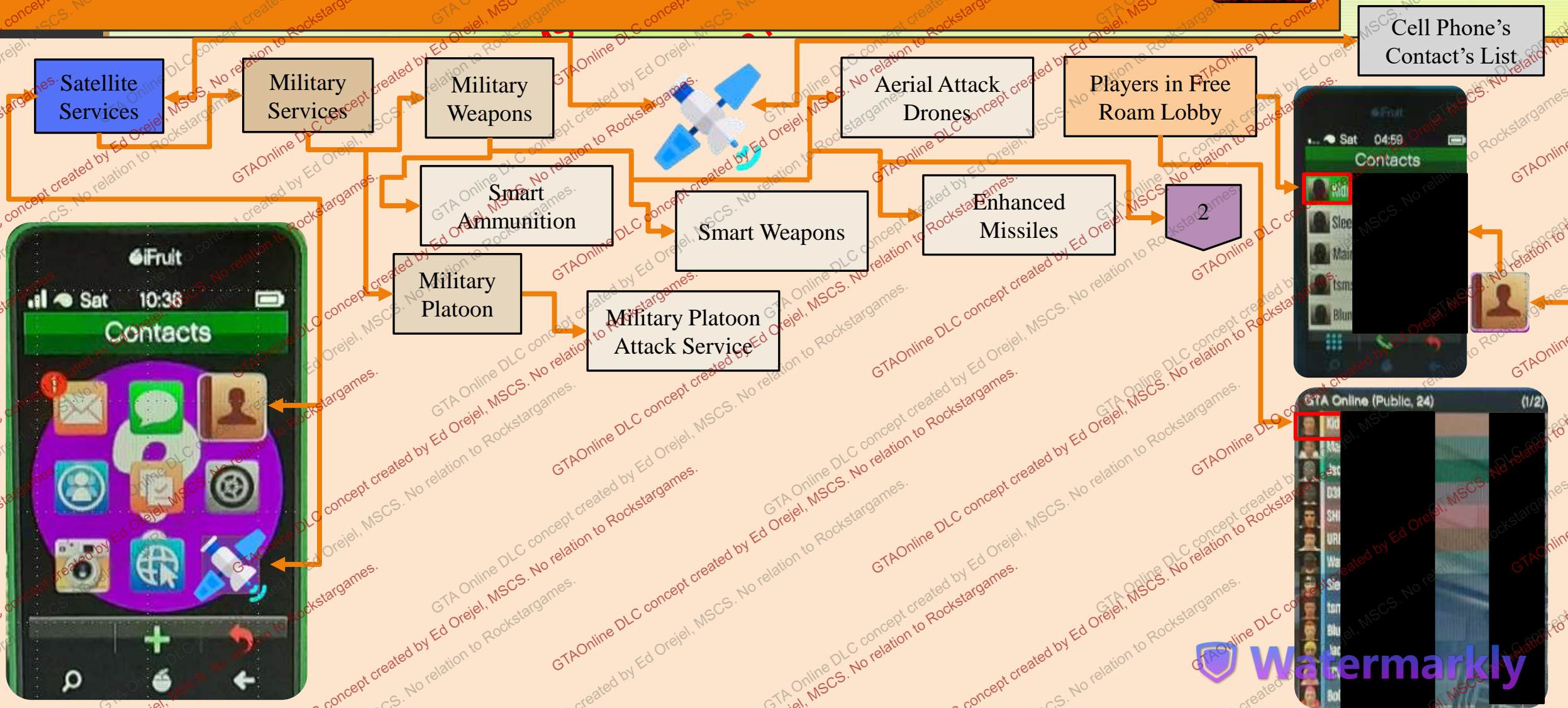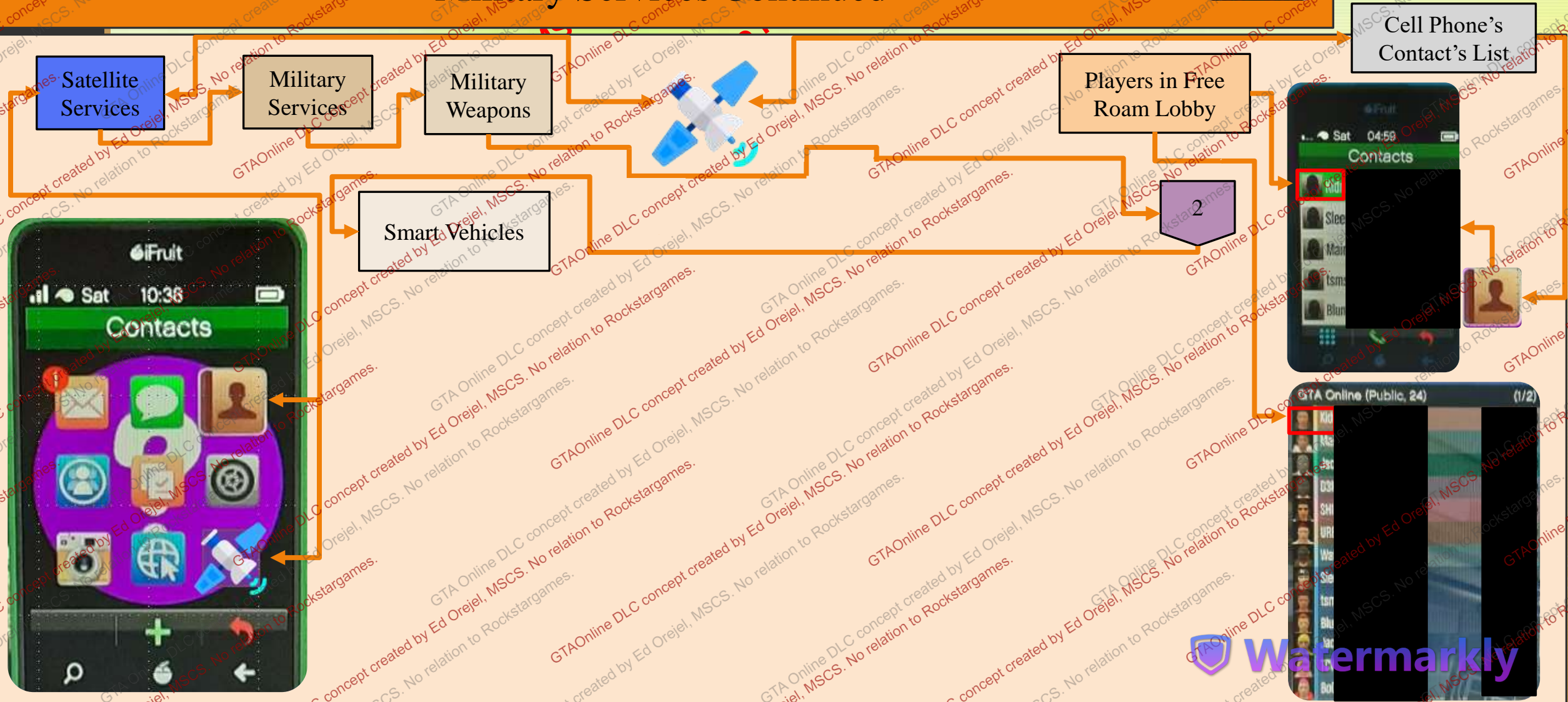# Conceptual Overview of Spy Satellite Services –
Top-Level Component View – All Services –
Military Services Continued

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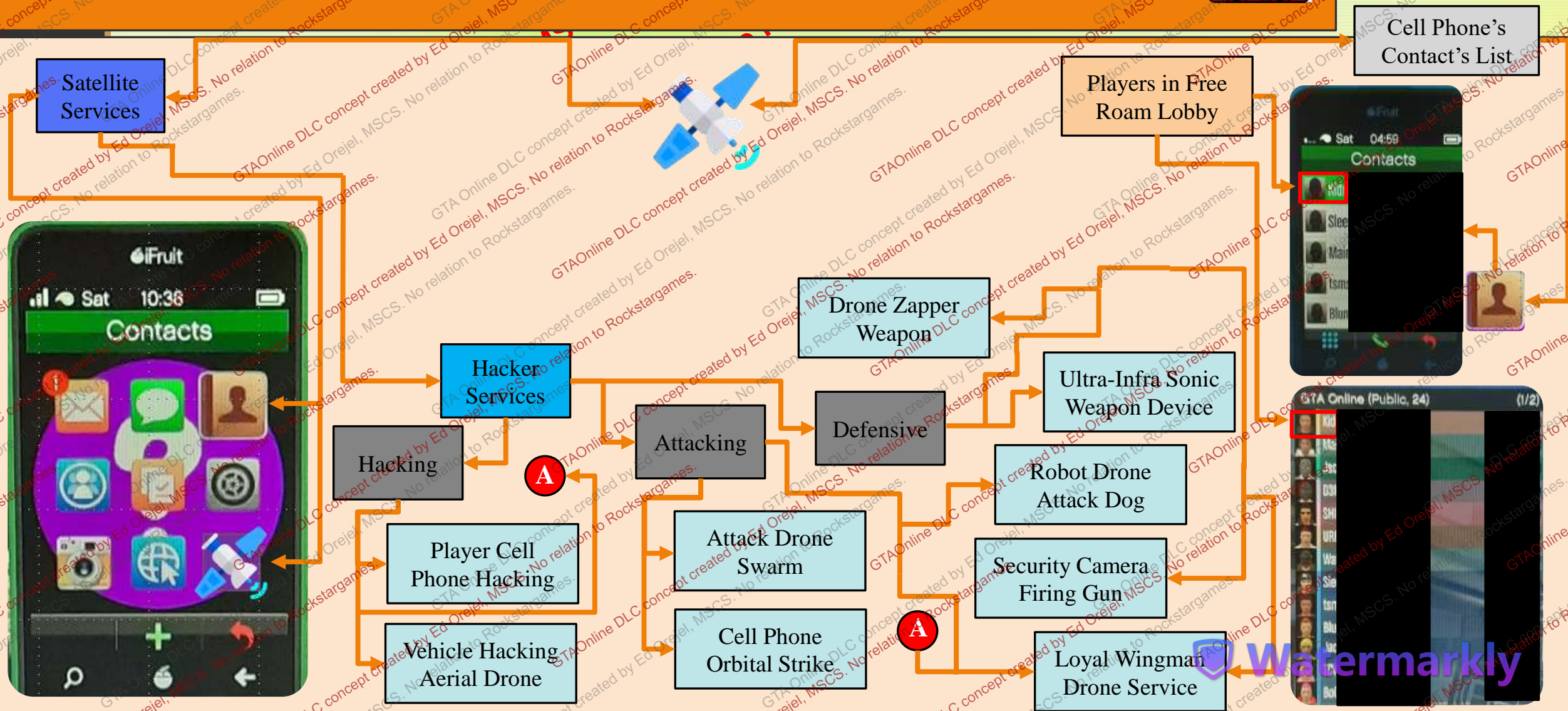Cell Phone's Contact's List

Satellite Services

Military Services

Military Weapons

Players in Free Roam Lobby

Smart Vehicles

2

Contacts

Cell Phone's Contact's List

Satellite Services

Players in Free Roam Lobby

Hacker Services

Hacking

Attacking

Defensive

Drone Zapper Weapon

Ultra-Infra Sonic Weapon Device

Robot Drone Attack Dog

Security Camera Firing Gun

Loyal Wingman Drone Service

Player Cell Phone Hacking

Attack Drone Swarm

Cell Phone Orbital Strike

Vehicle Hacking Aerial Drone

A

A

Proposed Data Flow: In and Out

Data Flow: In and Out

Data Flow: In and Out

Data Flow: In and Out

Data Flow: In and Out

Proposed Data Flow: In and Out

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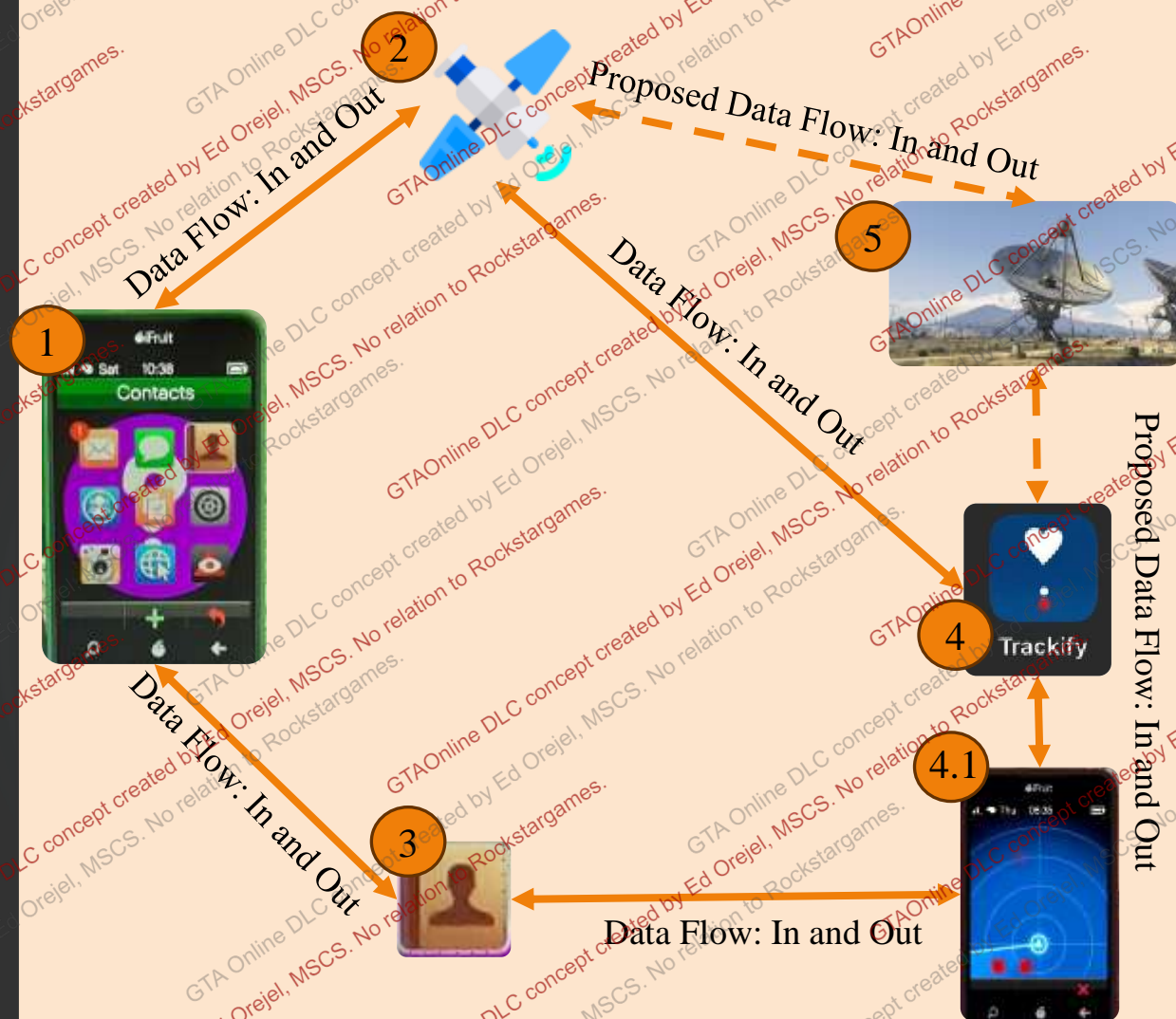
This flowchart shows the relationship that I am proposing with current in-game components. The purpose of organizing the components this way, is to create a new piece of technology in the game. The technology is in the form of a radar and targeting mechanism that will be created by the addition of a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

Smart Weapons Radar and Targeting System Data Flow – Actual Data Flow Between Connected Components – Trackify App Example

2

Data Flow: In and Out

Data Flow: In and Out

1

2.1

4

Trackify

Data Flow: In and Out

Data Flow: In and Out

4.1

3

Data Flow: In and Out

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.
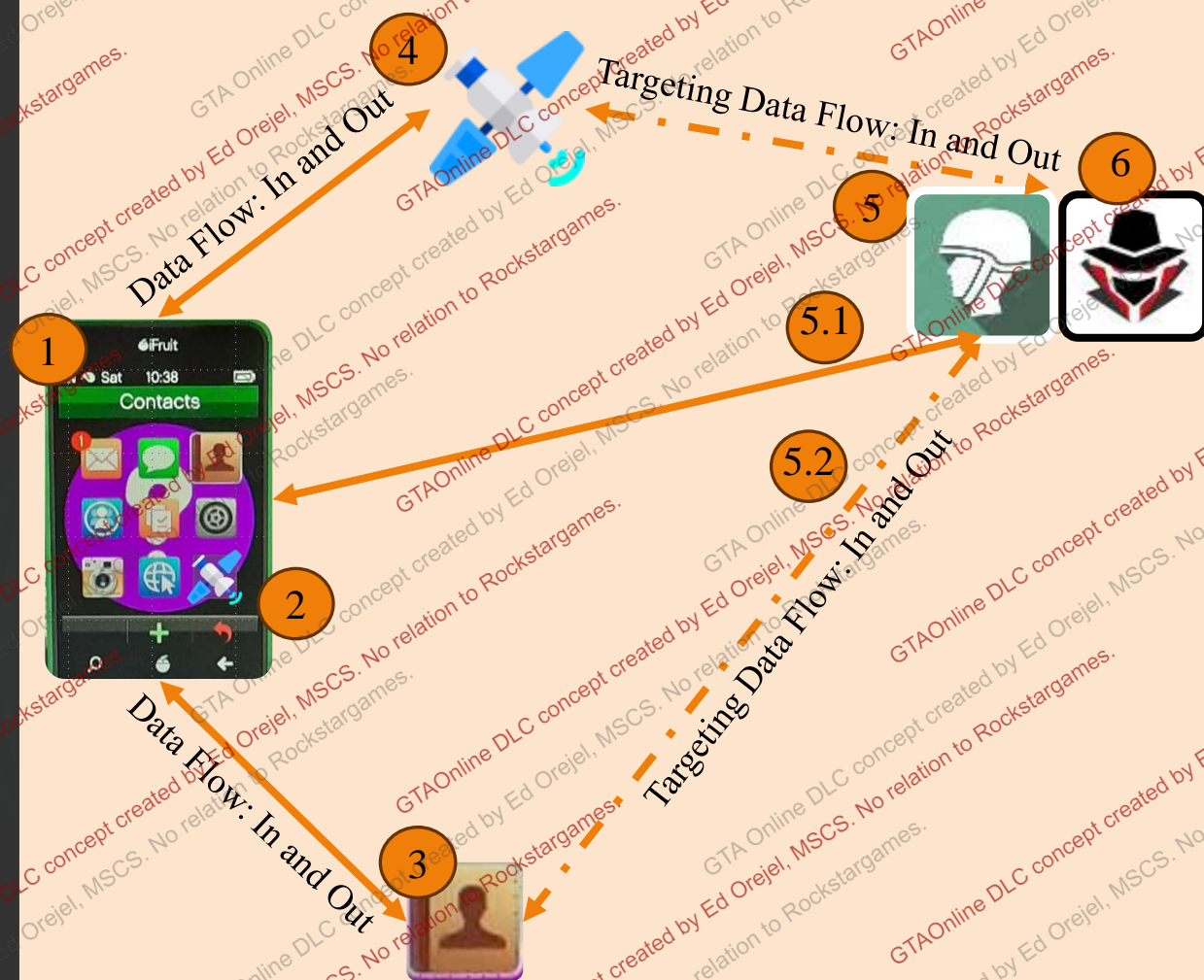   4.1 A radar system like GTA Online's Trackify App.

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.

Spy Satellite System Data Flow – Cellular Phone Access and Targeting Data Flow Between Components – Military Group and Shadow Hacker Group

4

Data Flow: In and Out

Targeting Data Flow: In and Out

6

5

5.1

1

2

5.2

Targeting Data Flow: In and Out

Data Flow: In and Out

3

The components being proposed are as follows:

1. The player's in-game cell phone.
2. The newly added spy satellite icon linked to the in-game cell phone.
3. The mobile phone's Contact's List.
4. The newly added spy satellite.
5. The newly added Military Group linked to the spy satellite.
   5.1 The Military Group will be linked to the player's in-game cellular phone.
   5.2 The Military Group will have access to the player's Contact's List.
6. The Shadow Hacker Group will also access the spy satellite, the cellular phone, and the Contact's List of the player.

Once the components are connected in-game, a data-link is created that enables the ability to deliver new and robust gameplay services to the player.

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

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Targeting Data Flow: In and Out

Data Flow: In and Out

Data Flow: In and Out

Data Flow: In and Out

Data Flow: In and Out

Data Flow: In and Out

Targeting Data Flow: In and Out

1

2

3

4

5

5.1

6

6.1

7

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

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.
7. Smart Rifle and Smart Bullet proposed weapons icon shown in the data flow.

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.

Other GTA Online Components Connected to Spy Satellite – Targeting Data Flow Between Components – Agent 14 Connected to Trackify through the Spy Satellite Component

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Targeting Data Flow: In and Out

Data Flow: In and Out

Data Flow: In and Out

Data Flow: In and Out

Data Flow: In and Out

Targeting Data Flow: In and Out

Data Flow: In and Out

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.

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.
    7.1 It is implied Agent 14 would use the spy satellite and the Trackify App to track players for various in-game tasks.

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.

Spy Satellite System Data Flow – Cellular Phone Access and Targeting Data Flow Between Components – Shadow Hacker Group – Social Engineering Component

17

Targeting Data Flow: In and Out

Data Flow: In and Out

**Data Flow: In and Out**

Targeting Data Flow: In and Out
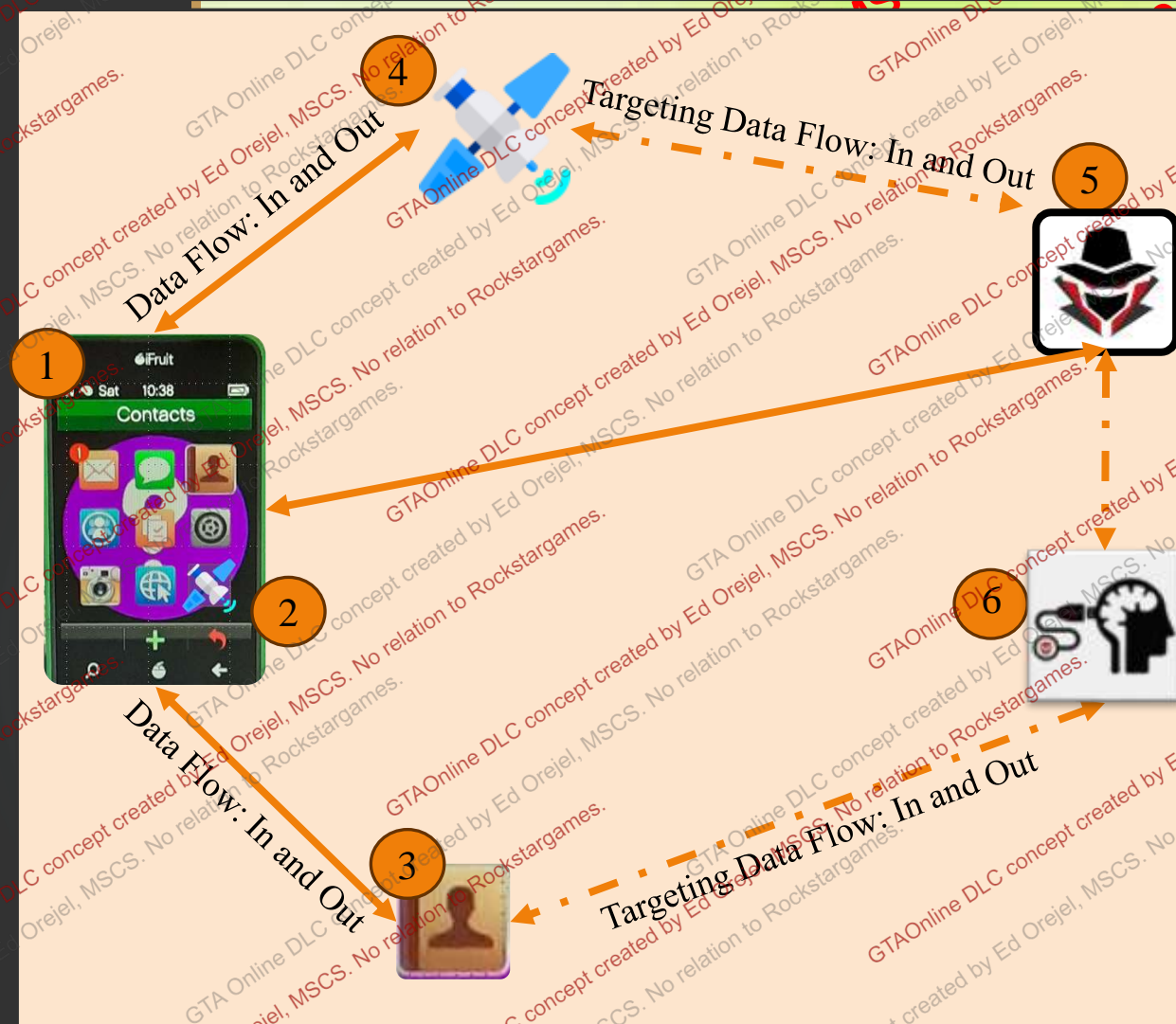
The Social Engineering Component data flow is presented in this slide. The components for it are as follows:

1. The player's in-game cell phone.
2. The newly added spy satellite icon linked to the in-game cell phone.
3. The mobile phone's Contact's List.
4. The newly added spy satellite.
5. The newly added Shadow Hacker Group linked to the spy satellite.
6. The Social Engineering component enabled for the players courtesy of the Shadow Hacker Group.

Once the components are connected in-game, a data-link is created that enables the ability to deliver new and robust gameplay services to the player.

Spy Satellite System Data Flow – Cellular Phone Access and Targeting Data Flow Between Components – Merryweather Security Services – New Feature – Remote Airstrike

18

4

5

Targeting Data Flow: In and Out

Data Flow: In and Out

1

2

Data Flow: In and Out

6

3

Targeting Data Flow: In and Out
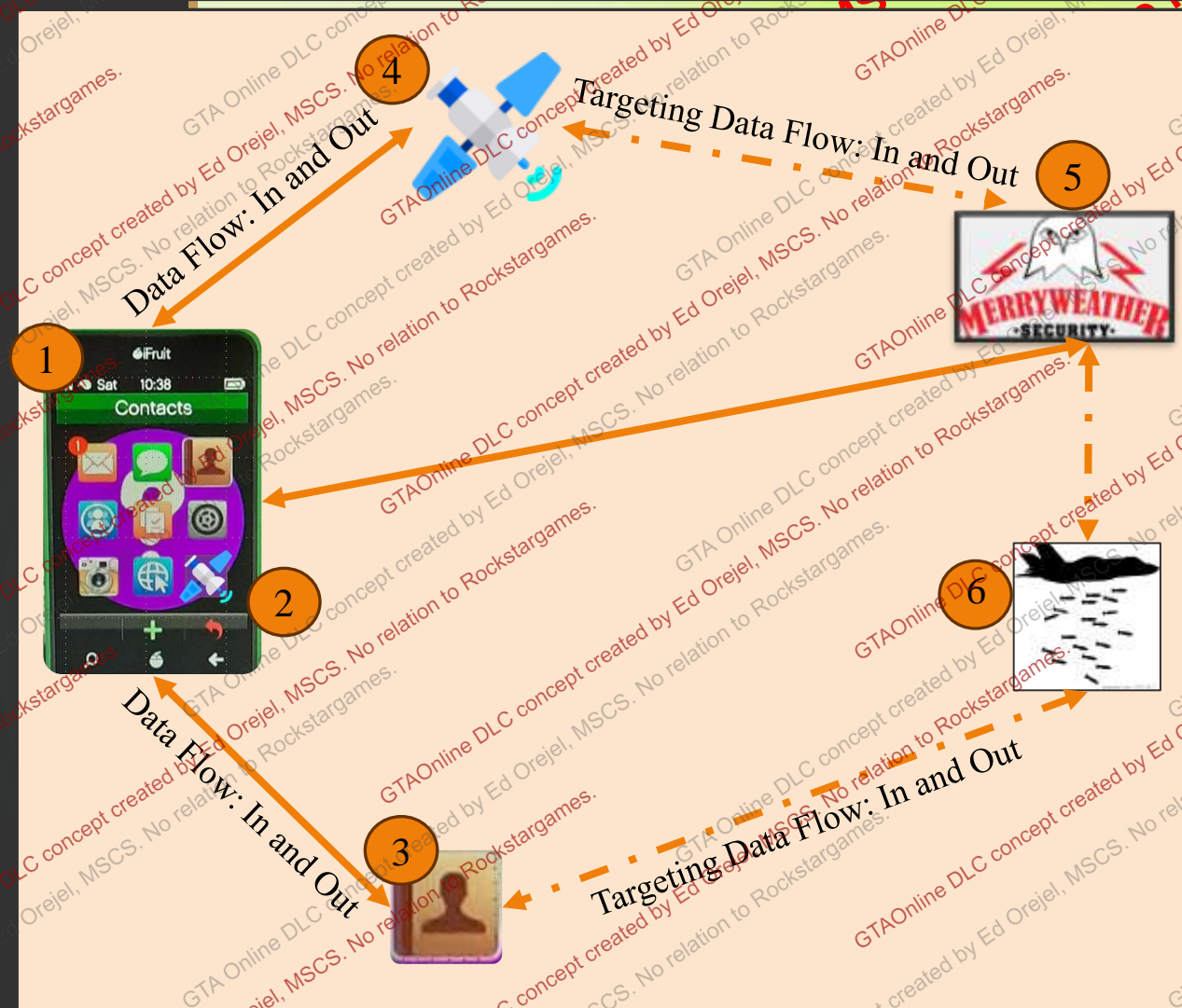
To highlight the robustness of adding a spy satellite to GTA Online, the Merryweather Security Services have been connected to the spy satellite. A new service that could be offered is a Remote Airstrike. The components are as follows:

1. The player's in-game cell phone.
2. The newly added spy satellite icon linked to the in-game cell phone.
3. The mobile phone's Contact's List.
4. The newly added spy satellite.
5. The newly connected Merryweather Security Services.
6. The new service enabled by Merryweather Security connecting to the spy satellite.
   6. The new service is a Satellite Guided Airstrike (remote airstrike).

If connecting Merryweather Security Services to the spy satellite is not possible, the newly proposed Military Group, can offer a Remote Airstrike to the players.

The Military Group icon is shown below: