

The major cyberattacks on the telecommunications sector in 2023

Kyivstar, Orange España, ‘Sea Turtle’ campaigns, T-Mobile US –
what is known?

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Introduction

Recently, there has been an increase in the number of cyberattacks aimed specifically at companies that provide telecommunication services. Controlling the vast majority of countries' complex and critical infrastructure, used for data sharing, and storing vast amounts of sensitive data, the impact of a successful cyberattack on the telecommunications sector can be significant and sometimes catastrophic.

By keeping confidential information about all their customers, telecommunications companies are tempting targets for cybercriminals or insiders trying to trick customers and steal money.

While ransomware remained a serious threat to organizations, in 2023, cyber threat actors focused on data theft and destruction, system disruption, and espionage. Let's talk about Kyivstar, Orange España, 'Sea Turtle' campaigns, T-Mobile US and what is known about it.

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Ukrainian “Kyivstar”

On the morning of December 12, 2023, subscribers of “Kyivstar” throughout Ukraine were unable to use mobile communication services and internet access due to a massive outage. The cause of the technical failure in the operator's system was a hacker attack.

CEO of “Kyivstar”, Alexander Komarov, noted that the cyberattack was highly powerful. According to him, there was a “penetration into the IT infrastructure and its destruction”. The primary goal of the attack, as explained by the company's leader, was the maximum destruction of the operator's intellectual infrastructure.

Key events.

- On December 12, 2023, at 5:26 am, “Kyivstar's” specialists identified unusual behavior in their computer network.
- At 6:30 am, “Kyivstar” employees realized that the company was under a powerful hacker attack. The target of the attack was the core network, responsible for processing and routing traffic between users and services.
- At 8:04 am, “Kyivstar” publicly announced the technical failure in its operations and warned of possible service limitations for its subscribers.

Ilya Vityuk, the head of the Cyber Security department of the Security Service of Ukraine (SBU), reported that the attack caused “catastrophic” destruction and aimed to deliver a psychological blow while obtaining intelligence information.

“This attack is a significant warning not only for Ukraine but for the entire Western world to understand that no one is immune”, - Ilya Vityuk

The attack destroyed “almost everything”, including thousands of virtual servers and PCs, according to Vityuk, describing it as possibly the first instance of a destructive cyberattack that “completely annihilated the core of the telecommunications operator”.

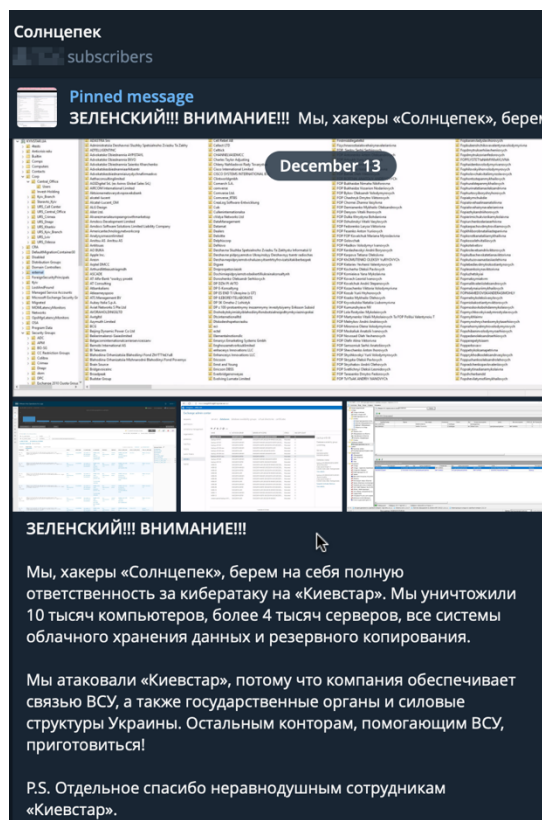
How the hackers compromised “Kyivstar”?

During the investigation, the SBU found that hackers may have attempted to penetrate “Kyivstar” in March 2023 or earlier.

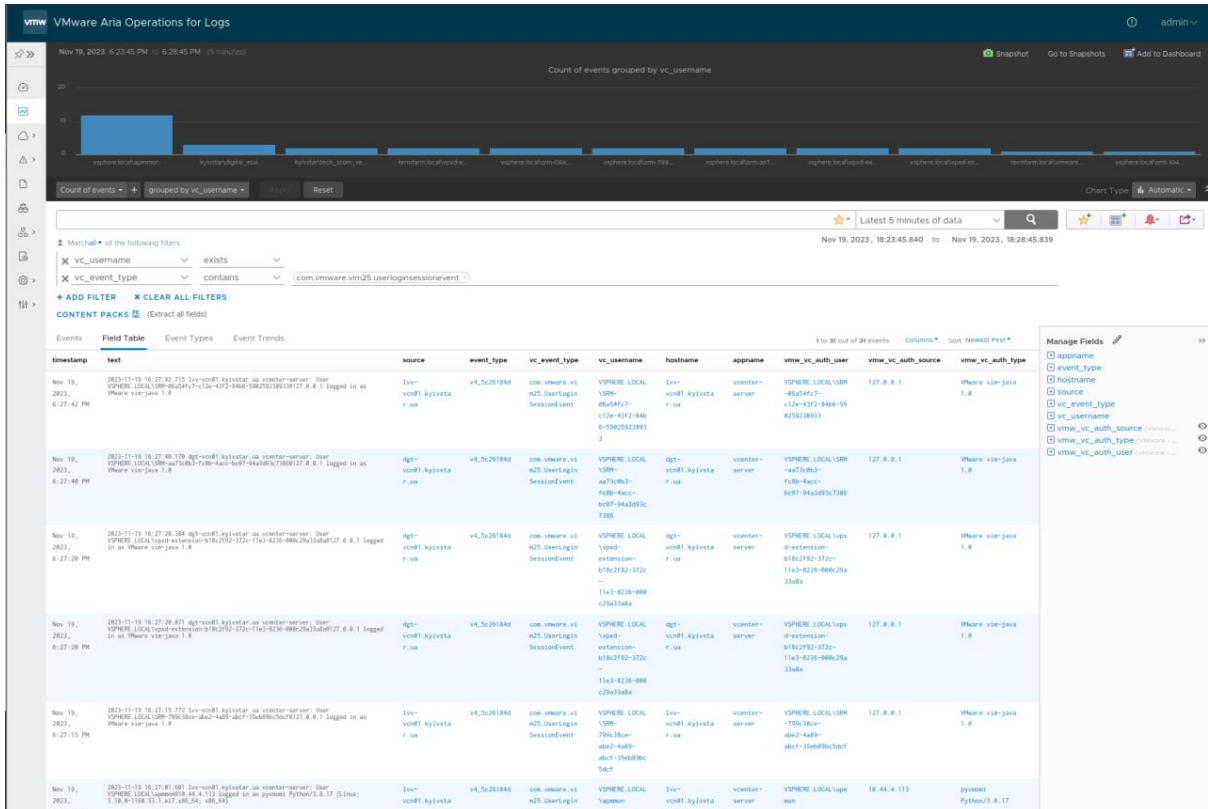
On December 13, 2023, the responsibility for the attack was claimed by the Russian hacker group “Sontsepok” (“Солнцек”). On their Telegram channel, they declared that they had destroyed “10 thousand computers, over 4 thousand servers, all cloud data storage systems, and backup systems”. They stated that they targeted “Kyivstar” because the company “provides communication for the Armed Forces of Ukraine, as well as state bodies and law enforcement agencies of Ukraine”. They also issued threats to other Ukrainian companies supporting the Ukrainian army.

On the same day, the SBU stated, “Responsibility for the attack has already been claimed by one of the Russian pseudo-hacking groups. It is a hacking unit of the main intelligence directorate of the Armed Forces of Russia”, specifying that they were referring to “Sontsepok”.

The Telegram channel “Sontsepok” published four screenshots intended to confirm their involvement in the attack on “Kyivstar”. Former Deputy Head of the Ukrainian State Special Communications Service, Victor Zhora, noted, “If the published screenshots are genuine, then the enemy was present in the network for quite a long time, thoroughly studied the topology and infrastructure of the services”.



Source by “Sontsepok” (Telegram channel)



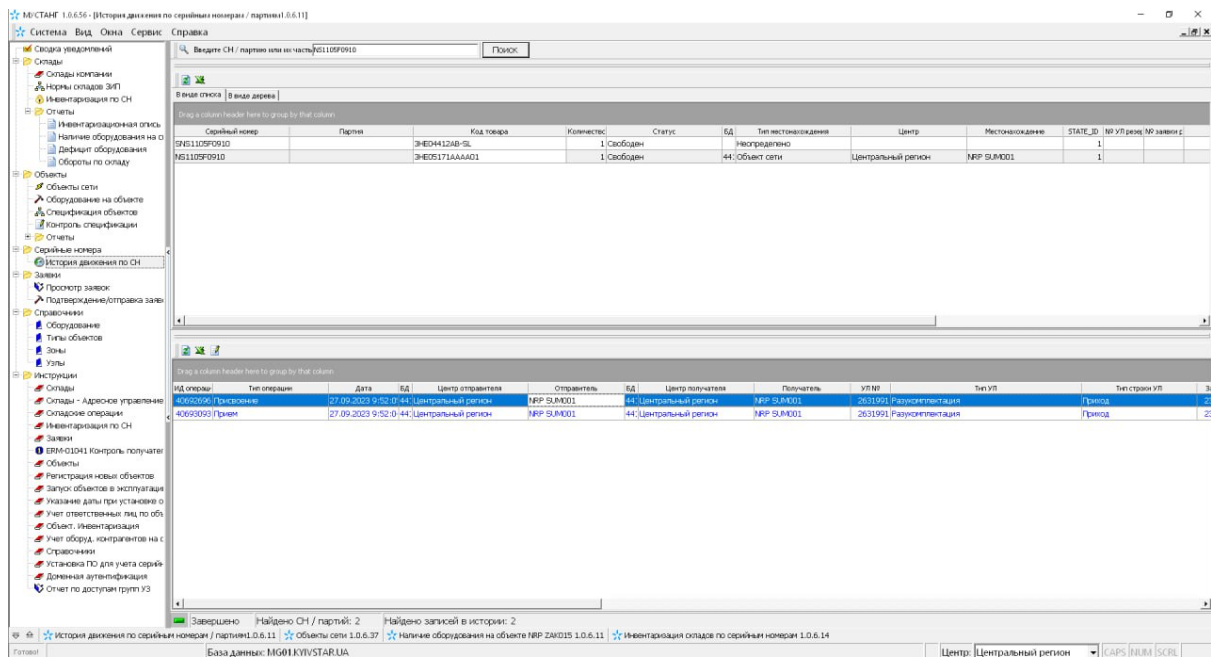
Exchange admin center

recipients permissions compliance management organization protection mail flow mobile public folders servers hybrid

servers databases database availability groups virtual directories certificates

NAME	ACTIVE ON SERVER	SERVERS WITH COPIES	STATUS	BAD COPY COUNT
backup-e16-08	EXCG2019-DGT01	EXCG2019-DGT01,EXCG2019-WHG01	Mounted	0
backup-e19-01	EXCG2019-LV01	EXCG2019-LV01,EXCG2019-WHG01,EXCG20...	Mounted	0
backup-e19-02	EXCG2019-WHG01	EXCG2019-WHG01,EXCG2019-DGT01,EXCG2...	Mounted	0
backup-e19-03	EXCG2019-DGT01	EXCG2019-DGT01,EXCG2019-LV01,EXCG20...	Mounted	0
backup-e19-04-new	EXCG2019-WHG01	EXCG2019-WHG01,EXCG2019-LV01	Mounted	0
backup-e19-05-new	EXCG2019-LV01	EXCG2019-LV01,EXCG2019-DGT01	Mounted	0
backup-e19-06-new	EXCG2019-WHG01	EXCG2019-WHG01,EXCG2019-LV01	Mounted	0
backup-e19-07-new	EXCG2019-DGT01	EXCG2019-DGT01	Mounted	0
backup-e19-09	EXCG2019-WHG01	EXCG2019-WHG01,EXCG2019-DGT01	Mounted	0
backup-e19-10	EXCG2019-DGT01	EXCG2019-DGT01,EXCG2019-WHG01	Mounted	0
MDB-01	EXCG2019-LV01	EXCG2019-LV01,EXCG2019-WHG01,EXCG20...	Mounted	0
MDB-02	EXCG2019-WHG01	EXCG2019-WHG01,EXCG2019-LV01,EXCG20...	Mounted	0
MDB-03	EXCG2019-DGT01	EXCG2019-DGT01,EXCG2019-LV01,EXCG20...	Mounted	0
MDB-04	EXCG2019-LV01	EXCG2019-LV01,EXCG2019-WHG01,EXCG20...	Mounted	0
MDB-05	EXCG2019-WHG01	EXCG2019-WHG01,EXCG2019-LV01,EXCG20...	Mounted	0
MDB-06	EXCG2019-DGT01	EXCG2019-DGT01,EXCG2019-LV01,EXCG20...	Mounted	0
MDB-07	EXCG2019-LV01	EXCG2019-LV01,EXCG2019-WHG01,EXCG20...	Mounted	0
MDB-08	EXCG2019-WHG01	EXCG2019-WHG01,EXCG2019-LV01,EXCG20...	Mounted	0
MDB-09	EXCG2019-DGT01	EXCG2019-DGT01,EXCG2019-LV01,EXCG20...	Mounted	0
MDB-10	EXCG2019-LV01	EXCG2019-LV01,EXCG2019-WHG01,EXCG20...	Mounted	0
MDB-11	EXCG2019-WHG01	EXCG2019-WHG01,EXCG2019-LV01,EXCG20...	Mounted	0
MDB-12	EXCG2019-DGT01	EXCG2019-DGT01,EXCG2019-LV01,EXCG20...	Mounted	0
restore-partial-backup-e16...	EXCG2019-LV01	EXCG2019-LV01,EXCG2019-WHG01	Mounted	0

1 selected of 23 total



Source by “Sontsepok”

According to Victor Zhora, the Telegram channel “Sontsepok” is a “dumping ground” for the GRU, where groups like APT28 and Sandworm deposit the results of their activities.

Vityuk confirmed that there is a high likelihood that the Sandworm hacking group, a unit of Russian military intelligence, was behind it. Sandworm has previously carried out cyberattacks on Ukrainian targets, including telecommunication operators and internet service providers.

Vityuk revealed that SBU investigators are still working to determine how the breach of “Kyivstar” occurred and what type of malware was used for the intrusion. He added that it could have been phishing, assistance from within, or something else.

Cybersecurity experts speculate that even if it was an inside job, an insider assisting the hackers did not have a high level of access within the company. This is because the hackers utilized software designed for stealing password hashes. Samples of this malicious software have been collected and are undergoing analysis, Vityuk added.

Recovery.

- On December 12, 2023, “Kyivstar” began restoring access to fixed-line communication services and gradually started restoring mobile communication. Meanwhile, the Ministry of Internal Affairs of Ukraine warned about scammers exploiting phishing links with fake messages purportedly from “Kyivstar” regarding the restoration timeline and compensation to subscribers.

- On December 14, 2023, “Kyivstar” enabled voice calls and restored home internet service to 93%.
- On December 15, 2023, “Kyivstar” activated mobile internet across the entire controlled territory of Ukraine, including 4G standard.
- On December 21, 2023, “Kyivstar” announced the complete restoration of all essential services affected by the hacker attack. Earlier, the company assured that subscriber information and personal data remained secure. After recovering from the cyberattack, the company decided to waive the scheduled tariff payments for all its users.

Consequences.

Due to the extensive disruption caused by the cyberattack, “Kyivstar” filed a lawsuit against the interference in the network's operation. The estimated damages are in the “billions of hryvnias”.

Orange España

One of the largest mobile operators in Spain has officially announced the restoration of its services after a cyberattack that caused a failure in the company's internet infrastructure.

Through its social media account, on January 3, 2024, Orange España spoke about the incident that occurred and its impact on customers. There was no official comment on whether the internet outage directly affected the Madrid-based company's mobile service, but the outage lasted about three hours in total.

What is known?

An attacker made some changes to the RIPE Orange España account, causing Border Gateway Protocol (BGP) routing to fail and significant traffic loss.

Additionally.

RIPE is a Regional Internet Registry (RIR) that oversees the allocation and registration of IP addresses and Autonomous System (AS) numbers in Europe, Central Asia, Russia and West Asia.

A hacker on X with a newly created account called “Ms_Snow_OwO” posted screenshots showing how they hacked the Orange RIPE NCC (Network Coordination Center) account using the password ‘ripeadmin’.



Source by "Snow"

“I've fixed the security of your RIPE administrator account. Send me a message to get the new credentials”, they said. “I was just looking into public leaks of bot data and came across the ripe account with the password ‘ripeadmin’ and no 2FA, no SE (social engineering) at all”. The attacker even shared a video detailing how he managed to access and compromise the network.

Threat intelligence company Hudson Rock, after analyzing the images sent, traced the hack to a computer belonging to an employee of Orange España, which was infected with Raccoon type Infostealer since September 4, 2023. Among the corporate credentials identified on the machine, the employee had certain credentials for ‘https://access.ripe[.]net’ using the email address that was compromised (adminripe-ipnt@orange.es).

“It is also worth noting that the password that was used on Orange's RIPE administrator account was ‘ripeadmin’ which is ridiculously weak” – “Snow”

The attacker later confirmed Hudson Rock's findings by tweeting that they had found the account in a public leak of stolen data.



Image by Hudson Rock

“I was just looking into public leaks of bot data and came across the ripe account with the password ‘ripeadmin’ and no 2FA, No SE at all”

When asked why they hacked the account, the attacker said they did it for the “lulz”, or in other words, for laughs.

Key events.

With access to the RIPE account, the hacker manipulated the way Orange's Internet addresses were perceived by the Border Gateway Protocol (BGP), a key component for managing global digital traffic.

Additionally.

BGP serves as a set of rules that define optimal data routes.

In addition, the hacker changed the AS number associated with Orange IP addresses. When properly assigned, AS numbers allow networks to exchange information on the Internet.

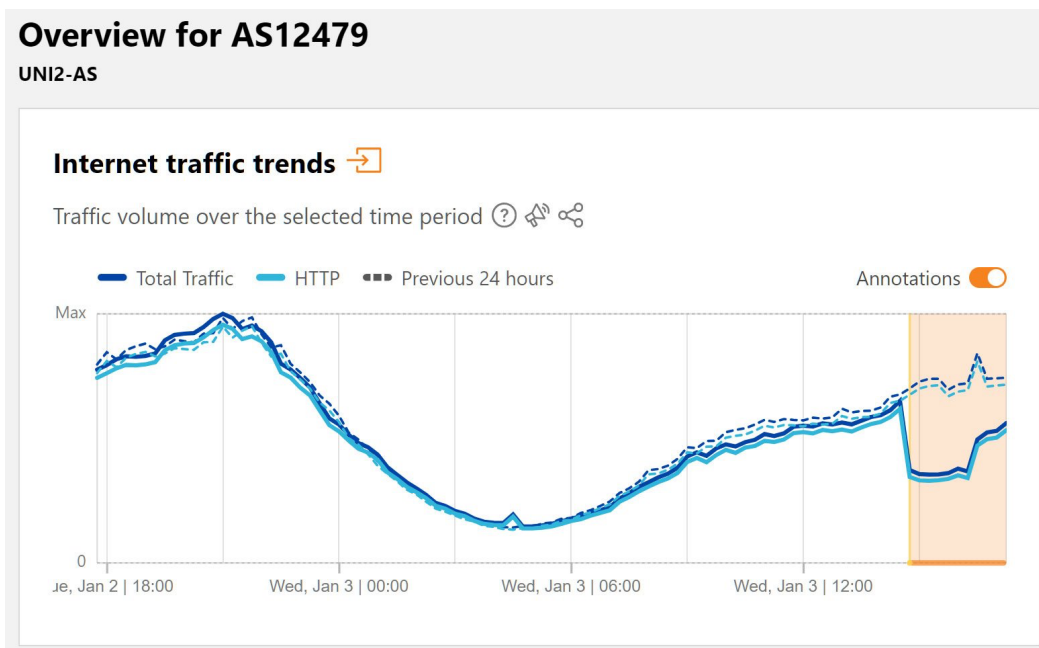
The attacker created an invalid Resource Public Key Infrastructure (RPKI) configuration for Orange España. RPKI is supposed to help secure BGP routing, but in this incident the hacker used it to ensure that switching to an AS number would cause problems.

Directly overlapping prefixes of 85.48.0.0/12

Prefix	RIR	BGP	RPKI	RIPE	Advice
85.48.0.0/12	RIPE NCC	12479	49581 1/12	12479	<ul style="list-style-type: none"> RPKI origin does not match BGP origin RPKI-invalid route objects found
85.48.0.0/13	RIPE NCC			12479	<ul style="list-style-type: none"> RPKI-invalid route objects found Route objects exist, but prefix not seen in DFZ
85.48.0.0/19	RIPE NCC	12479			No route objects match DFZ origin
85.48.36.0/22	RIPE NCC	12479			No route objects match DFZ origin
85.48.36.0/23	RIPE NCC	12479			No route objects match DFZ origin
85.48.38.0/24	RIPE NCC	12479			No route objects match DFZ origin
85.48.48.0/22	RIPE NCC	12479			No route objects match DFZ origin
85.48.52.0/22	RIPE NCC	12479			No route objects match DFZ origin
85.48.56.0/24	RIPE NCC	12479			No route objects match DFZ origin
85.48.57.0/24	RIPE NCC	12479			No route objects match DFZ origin
85.48.58.0/23	RIPE NCC	12479			No route objects match DFZ origin
85.48.60.0/22	RIPE NCC	12479			No route objects match DFZ origin
85.48.64.0/22	RIPE NCC	12479			No route objects match DFZ origin
85.48.68.0/22	RIPE NCC	12479			No route objects match DFZ origin
85.48.72.0/22	RIPE NCC	12479			No route objects match DFZ origin
85.48.75.0/24	RIPE NCC	12479			No route objects match DFZ origin

Source by Cañizares

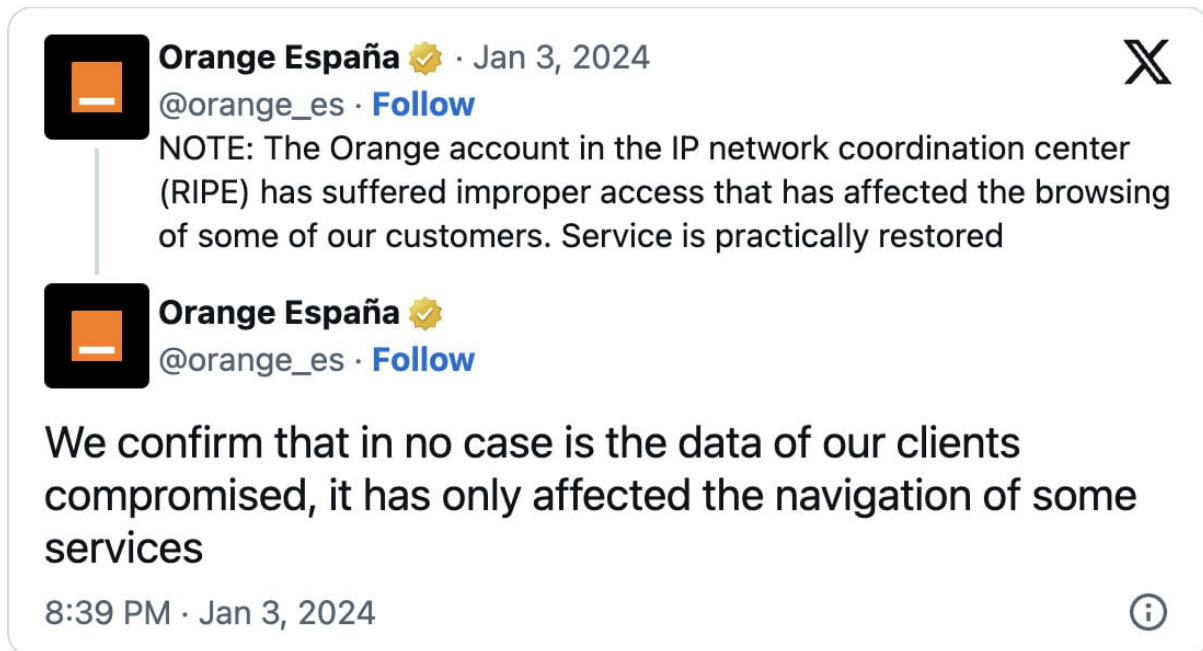
This resulted in a performance issue on the Orange España network between 14:45 and 16:15 UTC, which can be seen in the Cloudflare traffic graph for AS12479.



Source by Cloudflare

Recovery.

Orange España said on X that there was no compromise of customer data and clarified that the incident only affected the navigation of some services.



Source by Orange España

In response to the situation, RIPE released a statement acknowledging the investigation into the compromised account resulted in temporary disruption to the account owner.

RIPE has assured that access has been restored to the rightful owner of the account, and they are actively working together to ensure the integrity of the account. The information security team is conducting ongoing investigations to determine if other accounts were affected.

RIPE emphasized its commitment to contacting affected account holders directly, urging them to update their passwords and enable multi-factor authentication.

In response to inquiries regarding the lack of mandatory two-factor authentication, RIPE stated that they are accelerating the implementation of 2FA by making it mandatory for all RIPE NCC Access accounts as soon as possible.

Consequences.

The worst part of the incident is that “Snow's” motives are still unknown. Given the way the attacker behaved when changing the global routing table, the researchers believe they were simply experimenting with access to see what could be done.

Additionally, it's possible that the attacker was slow to raise awareness of the weak password and only escalated when he saw the company's soft response.

'Sea Turtle' hackers target Netherlands

During 2023, an Advanced Persistent Threat (APT) actor tracked as Sea Turtle (aliases: Cosmic Wolf, Marbled Dust, Silicon, and Teal Kurma, UNC1326) conducted successful espionage campaigns targeting government, telecommunications, media, and non-governmental organizations, as well as ISPs and IT service providers in the Netherlands.

Sea Turtle was first identified by Cisco Talos in April 2019 and is believed to be sponsored by the Turkish government. Their primary attack method involves DNS hijacking, redirecting targets attempting to request a specific domain to a server controlled by the threat. This server is capable of collecting victims' credentials.

According to the Talos, Sea Turtle poses a more serious threat than DNS espionage due to the actor's methodology of targeting various registrars and DNS registries. Microsoft also reported that the adversary is collecting intelligence to serve Turkey's interests, focusing on countries such as Armenia, Cyprus, Greece, Iraq and Syria.

The Netherlands security firm Hunt & Hackett analyzed the campaigns and found that the infrastructure of the targets was vulnerable to supply chain and island-hopping attacks. Sea Turtle used these flaws to collect politically motivated information, including personal data on minority groups and potential dissidents.

According to analysts, this APT is considered "moderate". Hackers mainly focus on exploiting available vulnerabilities to gain initial access to organizations.

Compromise cPanel and SnappyTCP Malware.

Sea Turtle, previously known for DNS hijacking, has deployed new TTPs in new campaigns. During one of the campaigns in 2023, Sea Turtle reportedly used a compromised account on cPanel, the web hosting control panel, from a VPN IP address.

The cPanel account was used to login via SSH from an IP address belonging to the hosting provider. This allowed the Sea Turtle to enter the target's IT infrastructure.

The APT then used the Unix Bash shell to execute malicious commands. The hacking group used a reverse TCP shell for Linux/Unix operating systems called SnappyTCP (available on GitHub).

Additionally.

SnappyTCP can be used to steal data, install additional malware, or perform other attacks.

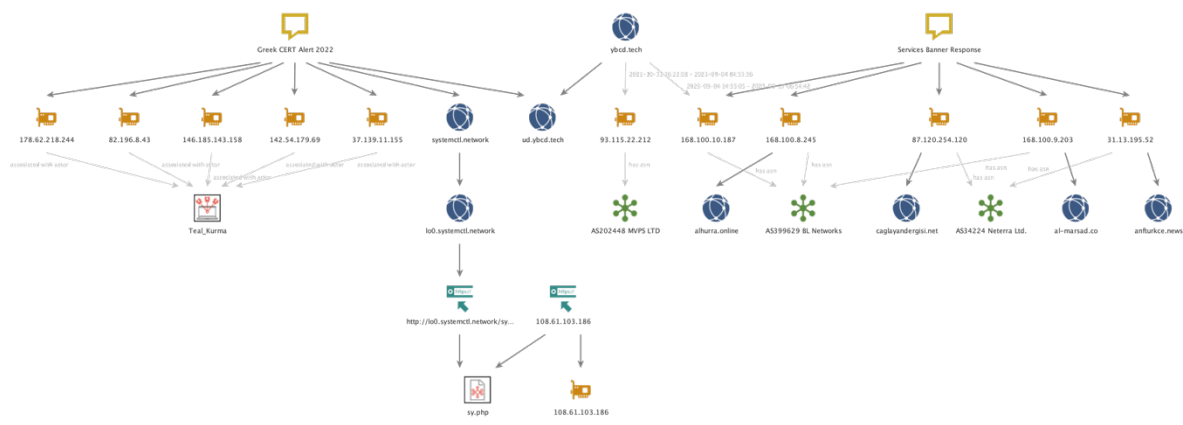
Next, the Adminer tool was installed in the public web directory of one of the compromised cPanel accounts.

Additionally.

Adminer is a public database management tool that can be used to remotely log into a system's MySQL service.

Finally, the attacker sent commands to the system using SnappyTCP to create a copy of the email archive in the public web directory of the website accessible from the Internet.

The email archive was created using 'tar', a utility designed to collect files into a single archive file for distribution or backup.



Source by PwC. Sea Turla infrastructure. Some of the pivots made to identify additional and more recent infrastructure

Recommendation.

To mitigate the risks associated with such attacks, organizations are encouraged to implement strong password policies, use two-factor authentication (2FA), limit the number of login attempts to reduce the likelihood of brute force attacks, monitor SSH traffic, and keep all systems and software up-to-date.

For more details about Sea Turtle you can find in [Strike Ready](#) and [PwC Threat Intelligence](#) reports.

T-Mobile US

First T-Mobile security breach.

Over the past year, T-Mobile US has faced several cyberattacks. In early 2023, the company suffered the second most impactful cybersecurity incident in its lifetime, resulting in the data theft of approximately 37 million users.

According to the content of the statement of T-Mobile US to the [US Securities and Exchange Commission](#), access to a limited set of customer account data was disclosed. However, the company claims that sensitive user data was not compromised by attackers.

Via API.

According to official information, the incident became known on January 5, 2023. During the investigation, it was determined that the attackers had access from around November 25, 2022, and the data was obtained through an enterprise application programming interface (API) without authorization.

T-Mobile noted that the malicious activity was completely stopped within 24 hours of detection. However, the company later announced that this incident could cause significant losses. However, which ones exactly, official sources do not report.

Second T-Mobile security breach.

In April 2023, T-Mobile disclosed a second data breach in which attackers had access to the information of 836 customers beginning in late February 2023. Official T-Mobile sources reported that the volume of compromised information is very large and exposes affected individuals to further theft of confidential data and targeted phishing attacks.

Between late February and March 2023, an attacker was found to have accessed restricted information from multiple T-Mobile accounts.

Later, on September 22, “vx-underground” published a tweet about 90 GB of personal data of T-Mobile employees being stolen as a result of the data leak.

This was linked to the April hack of Connectivity Source, a T-Mobile retailer. T-Mobile itself has denied wrongdoing and does not appear to have been directly implicated in the incident.



Hello, prepare yourself for another long post about the new T-Mobile breach and a mistake that we made.

Mistake: Employee PII was leaked, NOT customer PII. This is the 2nd time a T-Mobile breach has exposed T-Mobile employees.

We've had a large number of people asking how we knew about the T-Mobile breach and, is it tradition, we knew because the people responsible for it (leaking) notified us. However, it is already being discussed on forums. Unlike previous times we're given information prior to it's "official" media announcement, we can do more than "trust me, bro".

The breach was performed by an individual named "Doubl". The information was leaked by an individual named "Emo".

Oh, and hi Emo :)

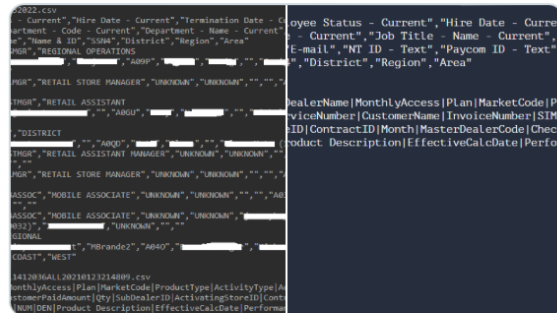
The T-Mobile breach occurred in April, 2023. Data from the breach was not shared until September 21, 2023 (today, as of this writing). This breach occurred shortly after the 2nd breach of this year, which occurred in March, 2023. We do not know why it took the Threat Actor(s) several months to leak the data, we can only speculate, so we will not =D

The leak was shared on the infamous BreachForum, information from the database is publicly available and is already being disseminated throughout Telegram and Discord.

The information from the leak is very large and we would not be able to sufficiently detail everything leaked in text because it is multiple databases. See attached image for a list of all data leaked.

Image 1. Data from the leak. It is censored to protect employees.

Image 2. List of database rows leaked



5:14 am · 22 Sep 2023 · 207.5K Views

Source by "vx-underground"

Recovery.

T-Mobile has reset account PINs for affected customers and is now offering them two years of free credit monitoring and identity theft detection through TransUnion myTrueIdentity.

Other cybersecurity issues.

It's worth noting that T-Mobile is not the first to face significant data security issues.

- **In August 2018**, T-Mobile released details of a cyberattack that compromised the information of approximately 3% of all T-Mobile customers.

- **In November 2019**, an attacker gained access to the account information of a certain number of prepaid customers (the exact number of affected customers was not disclosed).
- **In March 2020**, a data breach caused by a hacking attack on the email provider exposed the personal and financial information of some of its customers (the exact number of affected customers was not disclosed).
- **In December 2020**, attackers stole Customer proprietary network information (CPNI), including phone numbers and call records.
- **In February 2021**, attackers gained unauthorized access to an internal T-Mobile application.
- **In August 2021**, the company suffered its biggest impact, after an investigation revealed the data theft of more than 76.6 million current and former customers. American hacker John Brinns claimed responsibility for the attack. He claimed that T-Mobile maintained unsecured routers and weak addresses that allowed him to steal information from more than 100 servers. He did not explain what exactly he did with the information, but most of the compromised data is sold on the Darknet for use in identity theft or other cyberattacks. Brynn said only that the purpose of the T-Mobile attack was “revenge against the United States for the kidnapping and torture of John Erin Binns”.

The 2021 data breach was T-Mobile's largest loss of customer information. That made many tech experts wary of the company's ability to learn from its mistakes and left T-Mobile in a weak position in future litigation.

Faced with a class-action lawsuit after breaching its customer privacy and data protection policies, T-Mobile has agreed to pay \$350 million to class-action plaintiffs and invest \$150 million in its cybersecurity systems.

- **In April 2022**, the hacker group Lapsus\$ stole the source code for a number of the company's projects.

Conclusion

With all the recent data breaches, it's hard to believe that all of your personal information isn't just floating around, waiting to be used. It would be great if all companies affected by cyberattacks learned from their mistakes and took even more precautions to protect their systems and networks.

The following practices are partial recommendations for strengthening defenses against cyber threats:

1. Tracking cyber incidents using SIEM, IPS and EDR systems.
2. Apply a strong password policy.
3. Introduction of mandatory two-factor authentication (2FA) for all users.
4. Limit the number of authorizations attempts in the systems.
5. Monitor SSH traffic.
6. Update systems and software in a timely manner.
7. Fill the database of indicators of compromise.
8. Educate your employees and customers on the rules of cyber hygiene, since, in practice, malicious actors, using social engineering, successfully manipulate users to obtain primary access.