

# STORMNET

NETWORK RESILIENCE SYSTEM

PRESENTED BY THE LONELIST

02/03/2025

A hand holding a glowing globe with a network overlay, symbolizing global connectivity and digital infrastructure.

# Problem:

**Network issues** in underserved regions with poor connectivity and **low technical expertise** disrupt public service reliability and operations.

- School activities can be interrupted by storms, like important exams and slowing student preparation;
- Hospitals can lose access to digital medical records for days during the rainy season leading to delayed treatments.

# Solution:

System that diagnoses and resolves network problems in environments with limited or missing connectivity or poor technical expertise.



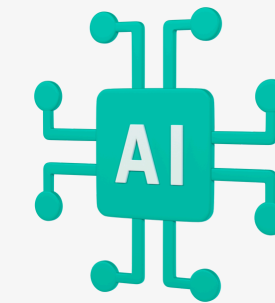
## **Weather and Internet Network Monitoring**

Detects critical conditions that could cause connectivity disruptions, anticipating potential network outages.



## **Alert and Prevention System**

Notifies users of potential risks and suggests preventive actions to ensure operational continuity.



## **AI Troubleshooting Agent**

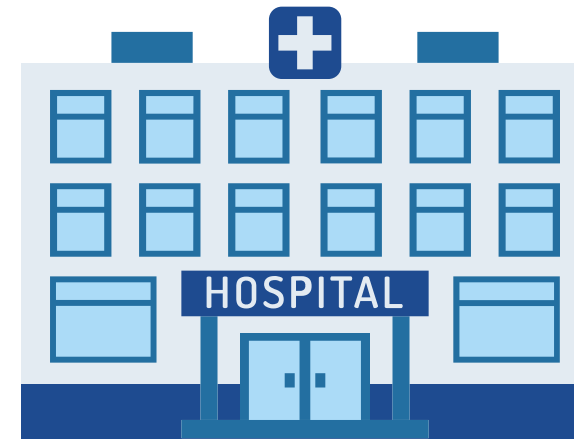
Guides users in resolving issues with simple instructions and integrates an image recognition system to identify network errors.

# Customer Segments:



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**Schools  
and Universities**



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**Hospitals**

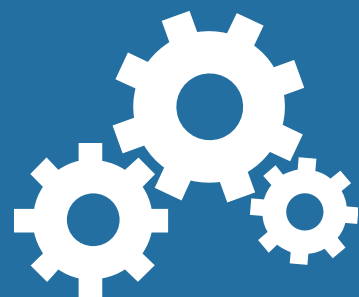


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**Communities and  
Small and Medium  
Enterprises**

Figures involved operate in critical areas with unstable or difficult to manage network infrastructures.

# End Users:



## Central administrator

- It has a complete vision of the territory it monitors;
- It has access to a system that allows you to monitor the connectivity of schools (or other entities in the system);
- Receives notifications in case of problems and can intervene by contacting the facilities.



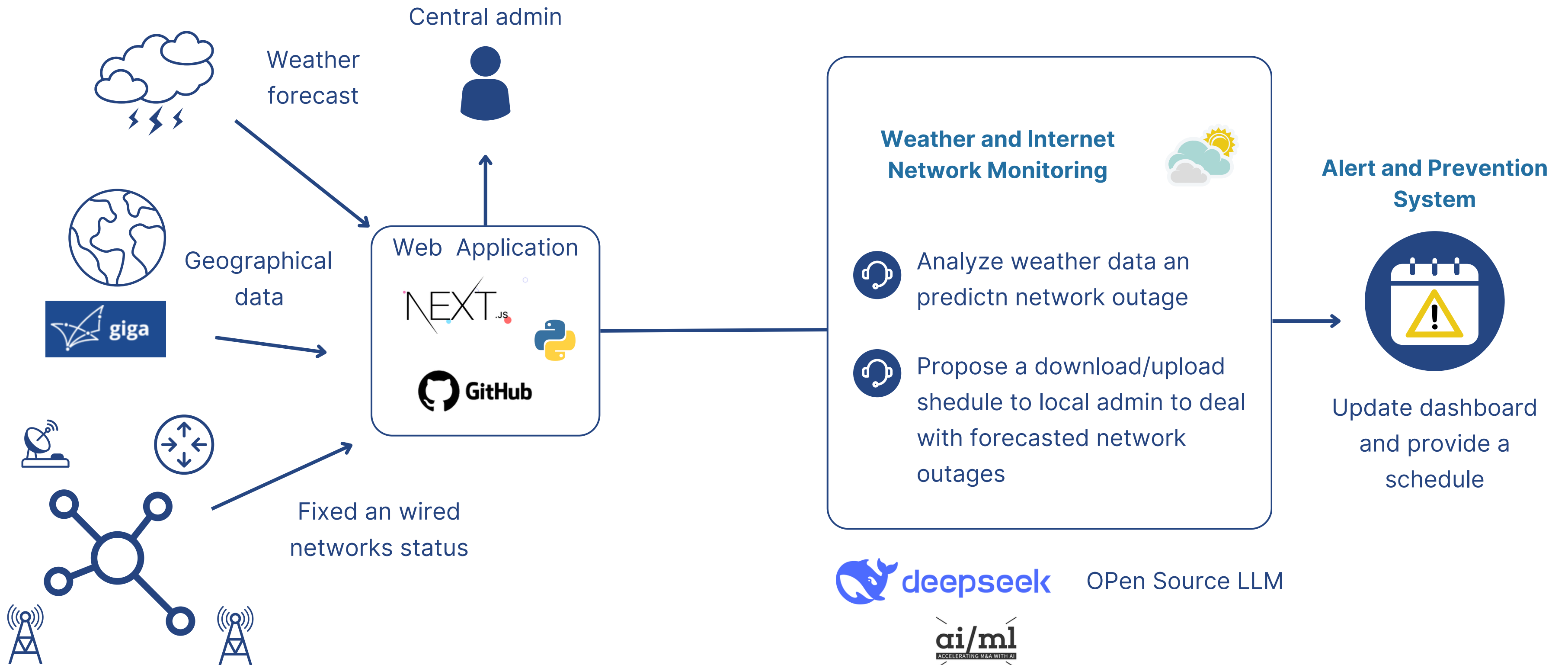
## Local

**(e.g. school, local authority)**













- It has only one agent installed, which it can consult to resolve technical problems;
- Can be notified of potential connection problems.

\*For the demo we put the features into a single platform using dummy data.

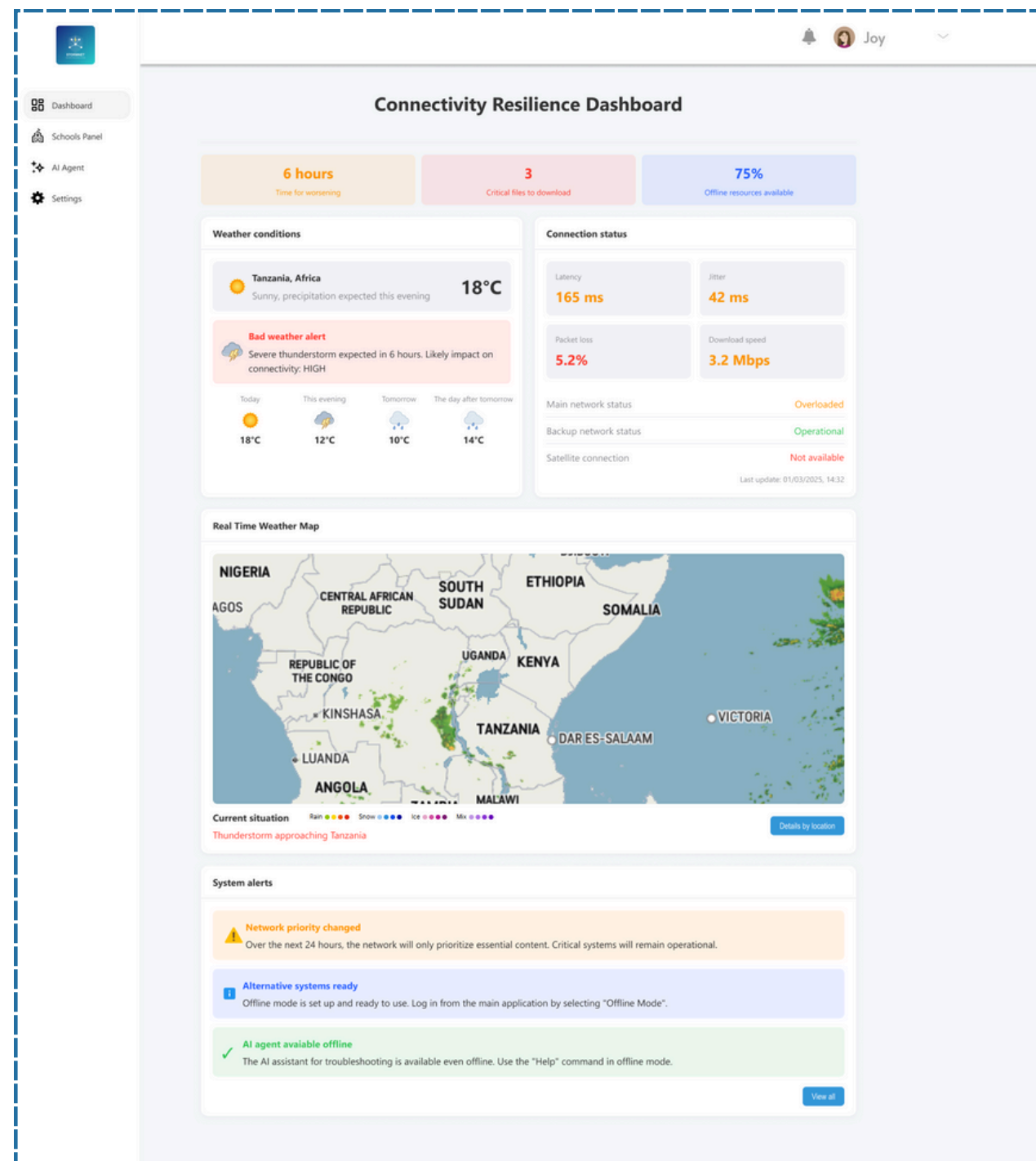
# AI Architecture: central admin



# The impact of weather in network

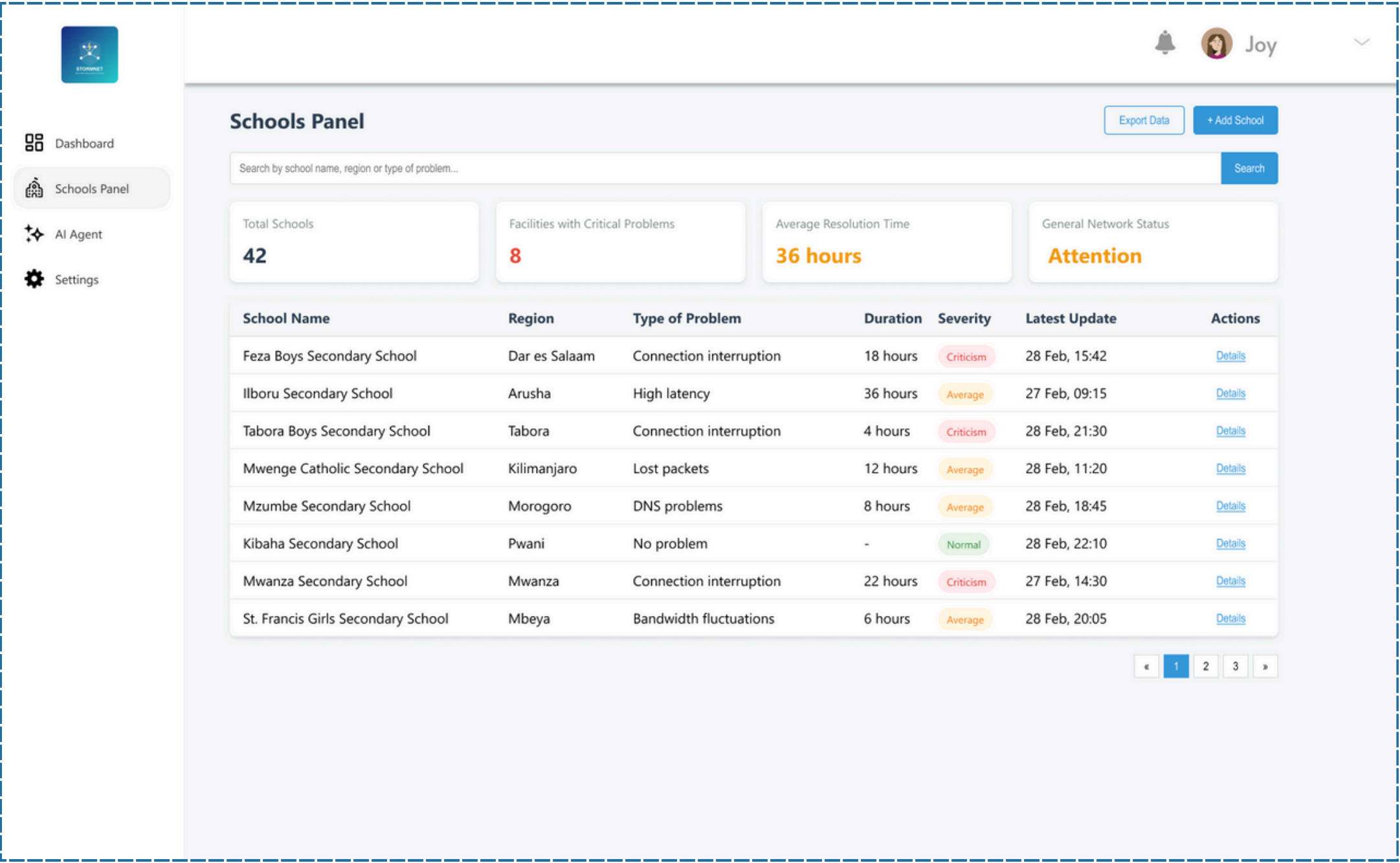
Weather	Optical Fiber	Wireless network	Satellite connections
 Rain	 None or negligible	 Significant attenuation for high frequencies (mmWave, >24GHz). Rain may cause signal loss and speed reduction.	 High attenuation, especially on the Ku and Ka-band frequencies. May cause temporary signal loss ("rain fade").
 Clouds	 None or negligible	 Minimal impact, but in some cases they can slightly attenuate very high frequency signals (above 30 GHz).	 Low impact, but can slightly attenuate the signal at high frequencies.
 Fog	 None or negligible	 Negligible effect, unless there is strong humidity which contributes to the absorption of the signal at high frequencies.	 Less effect than rain, but humidity can contribute to signal dispersion.

# Demo: Dashboard



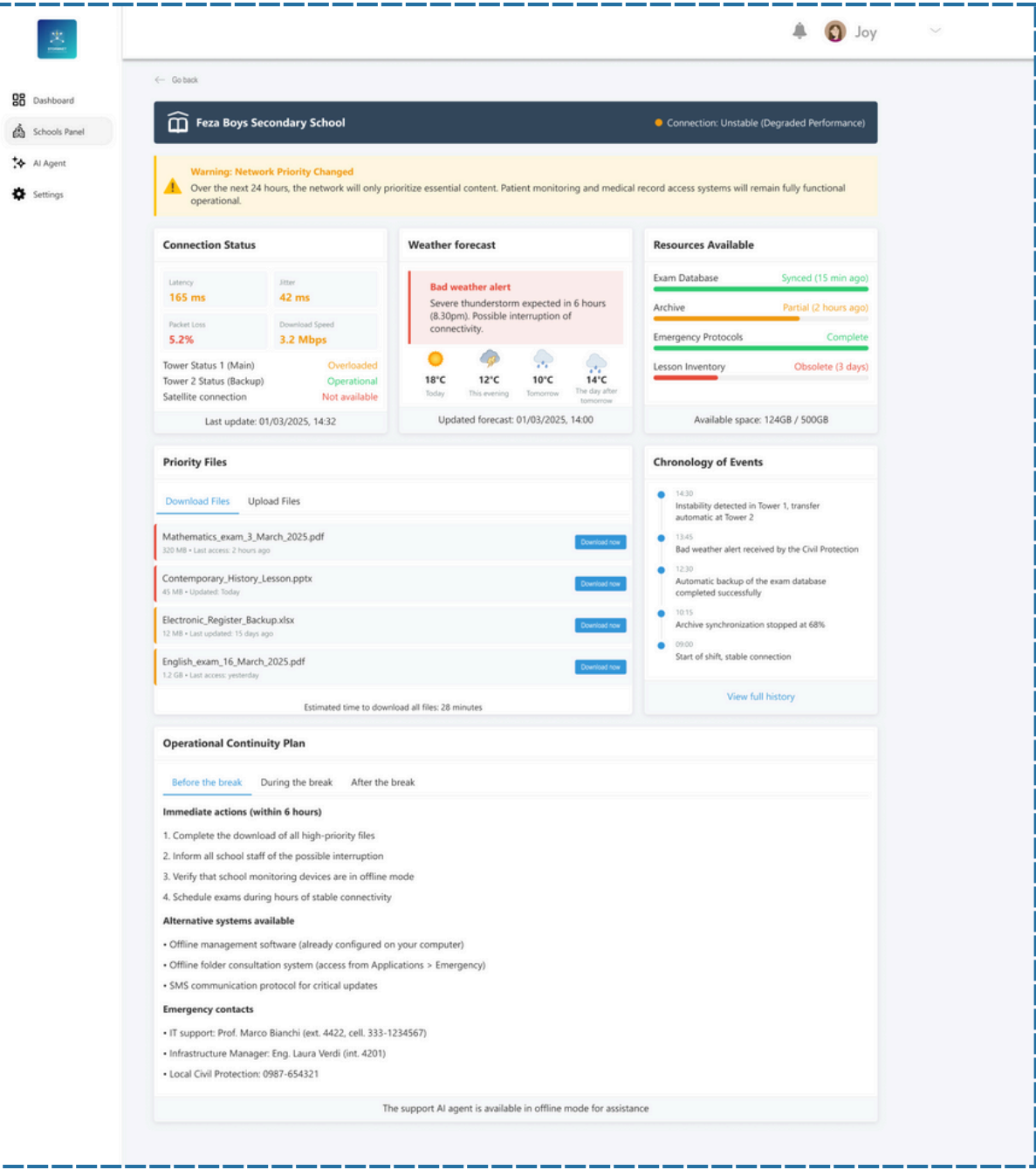
Information updated in real time on the **weather conditions** and **connection status** of a specific territory, with **alert systems** to prevent blockages, slowdowns or overloads of the network.

# Demo: School Panel



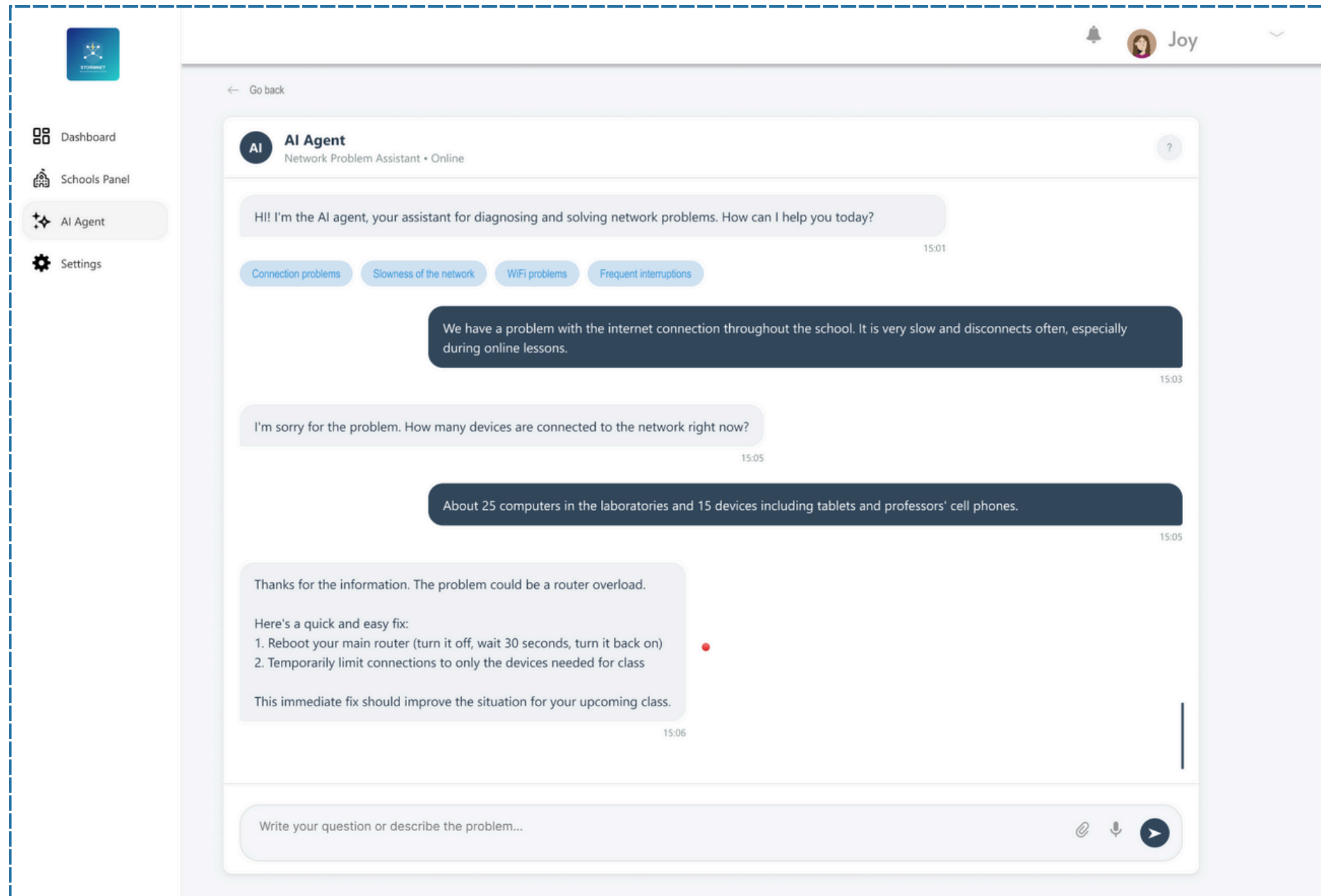
Control **panel of local schools** with information on **network problems**, their **severity** and the possibility of delving into the **details** of each school.

# Demo: School Card



Detailed profile of an **individual school** with information on **connection status**, **weather conditions**, available **resources**, **operational contingency plan** and the ability to **download important files** from internal servers.

# Demo: AI Agent



**AI agent** available offline for emergencies, to report network problems and to provide simple **suggestions for users without advanced technical skills.**

# Market size:

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We chose Tanzania as a model for Market Size due to its rapid demographic growth: the population, currently over 70 million, is increasing at an annual rate of about 2.9%.

Both educational and also healthcare facilities are expanding, but this make them more vulnerable to period of heavy rainfall and drought.

## Total Available Market (TAM)

Around **21,000 schools and educational centers** are **vulnerable** and may cease operations during both the rainy and drought seasons.

## Serviceable Available Market (SAM)

In the initial testing phase, StormNET should be tested in a **metropolitan area** where structures are already somewhat interconnected. Approximately **40% of them**, or about **8,400 schools** and educational facilities, could potentially be involved.

## Serviceable Obtainable Market (SOM)

StormNET will initially be deployed in a **limited network of schools** during testing (but eventually involving also public structures like **hospitals**).

In an optimal strategy, StormNET should expand to a small percentage of total structures for a gradual, effective rollout.

- **5% expansion: ~1,050 schools**
- **10% expansion: ~2,100 schools**

# S.W.O.T

swot analysis

# S

## Strengths

Tanzania boasts a hybrid telecommunications network, with wired infrastructure in cities and widespread wireless communications in less urbanized areas. This model ensures broad coverage, effectively meeting the country's diverse geographical and demographic needs

# W

## Weaknesses

While the telecom network is well-developed, potential service disruption or connectivity issues in rural areas could impact on StormNET's effectiveness.

# T

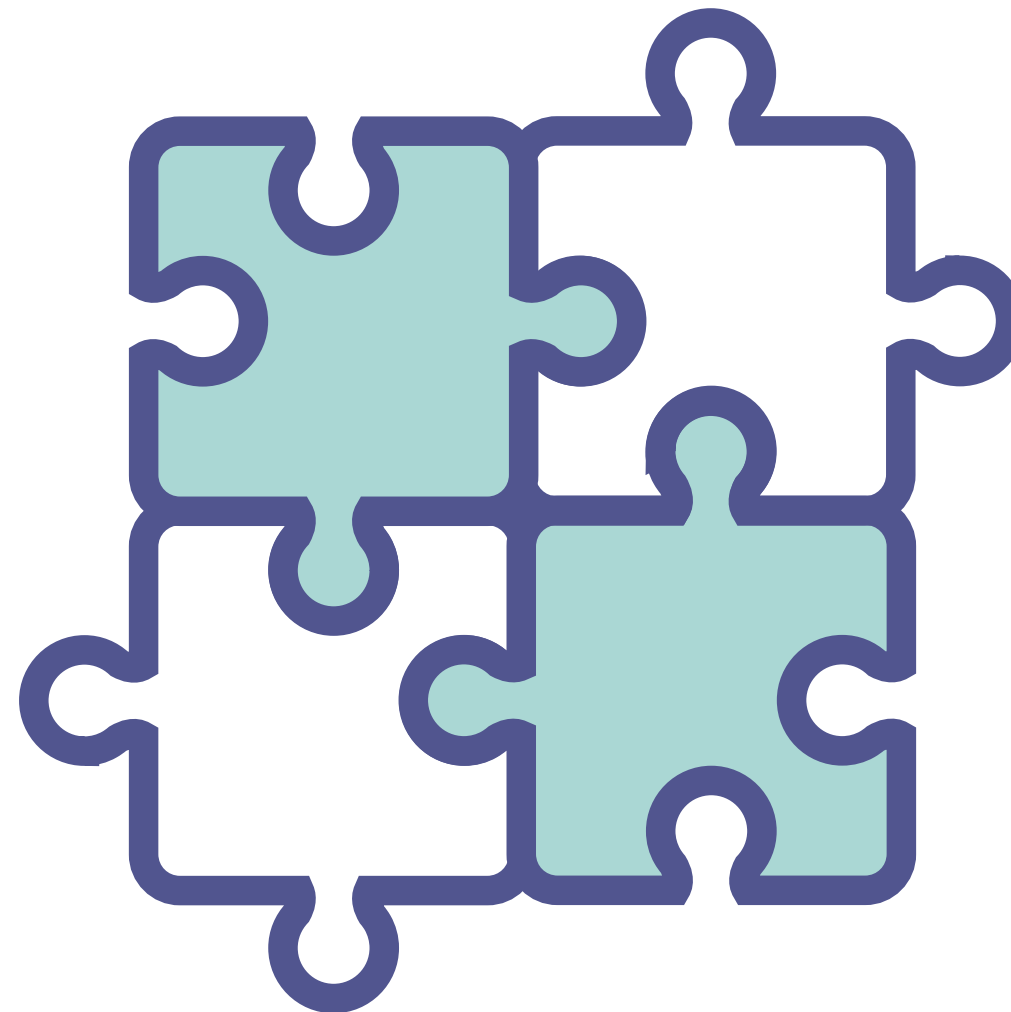
## Threats

The vulnerabilities associated with extreme weather conditions require careful planning and the adoption of resilient technological solution. Before expanding geographically to cover 5%–10% of the territory, a testing phase should be carried out.

# O

## Opportunities

The combination of robust demographic growth, the expansion of public infrastructure, and a well-developed telecom network makes Tanzania an ideal environment for the deployment of StormNET.



# Market Launch:

## ***Phase 1: Testing & Initial Deployment***

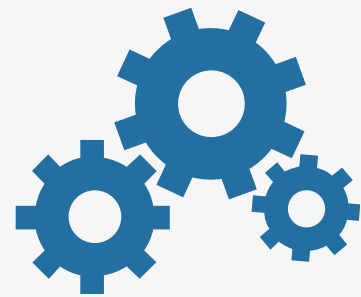
StormNET will first be deployed created a POC (Proof of Concept) in a limited number of schools and other social structures like hospitals to assess performance and adaptability. Despite Tanzania's strong telecom network, rural connectivity may arise.

## ***Phase 2: Scaled Expansion***

After successful testing, Stormnet will extend to local users like hospitals and other public structures across the entire territory, including areas outside cities. Tanzania's growing population, expanding infrastructure, and hybrid telecom network create an ideal environment for deployment.



# Revenue Streams:



## Central administrator

- Transform existing connectivity into **robust, community-focused digital services**, centralizing the monitoring of extreme weather's impact on public services.
- Prevention of operational disruptions during crises and **cost optimization** in **emergency management**.



## Service provider

- **Short term:** public funding during the initial POC fase.
- **Long term:** Mixture revenue streams from local structure and public financial support from the different structures receiving the service during the expansion across the territory once the testing phase is completed.



## Users

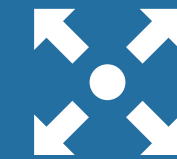
- **Short term:** improvement of local public services, such as education and healthcare, to prevent disruptions caused by weather-related crises.
- **Long term:** Create platforms that transform connectivity into community-focused digital services, improving social services across an expanded territory.

# Future development



## Provider flexibility

The use of the system by the State and public structures, through a network with multiple providers, would allow **adapting the choice of provider based on needs over time**. The primary goal would be the management of weather-related crises, while a secondary objective, closely linked to this, would involve optimizing resources and dynamically managing infrastructure, thereby improving the system's resilience and flexibility in the face of unforeseen events.



## Service Expansion Strategy

The system was initially tested in **response to energy crises caused by weather events**. This application proved to be optimal as it focuses on two main factors: the weather and the risks associated with public infrastructure. However, once its effectiveness in this area is confirmed, the system has significant potential for expansion into other critical sectors. A concrete example of a future application could be **monitoring energy insufficiency** resulting from power plants, thus broadening the scope and effectiveness of the system.



# WE ARE: “THE LONELIST”

*AI innovators with a proven track  
record in AI-driven business  
solutions*

Previous Achievements:

- 🏆 Llama Impact Hackathon Rome **(Finalist)**  
– AI-driven HR solutions
- 🏆 AI for Adherence Florence (Winner) – AI-  
powered healthcare engagement tool

# Team:

Nicola Caione  
(Developer/PM)

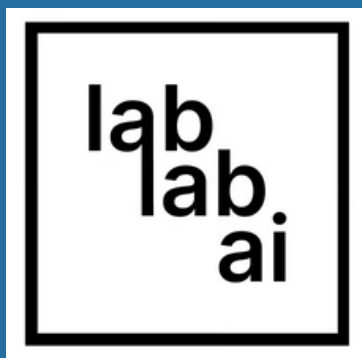
Joy Ciliani  
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(Developer)

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# Thank you for the attention!

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