Hybrid Satellite & Internet Distribution

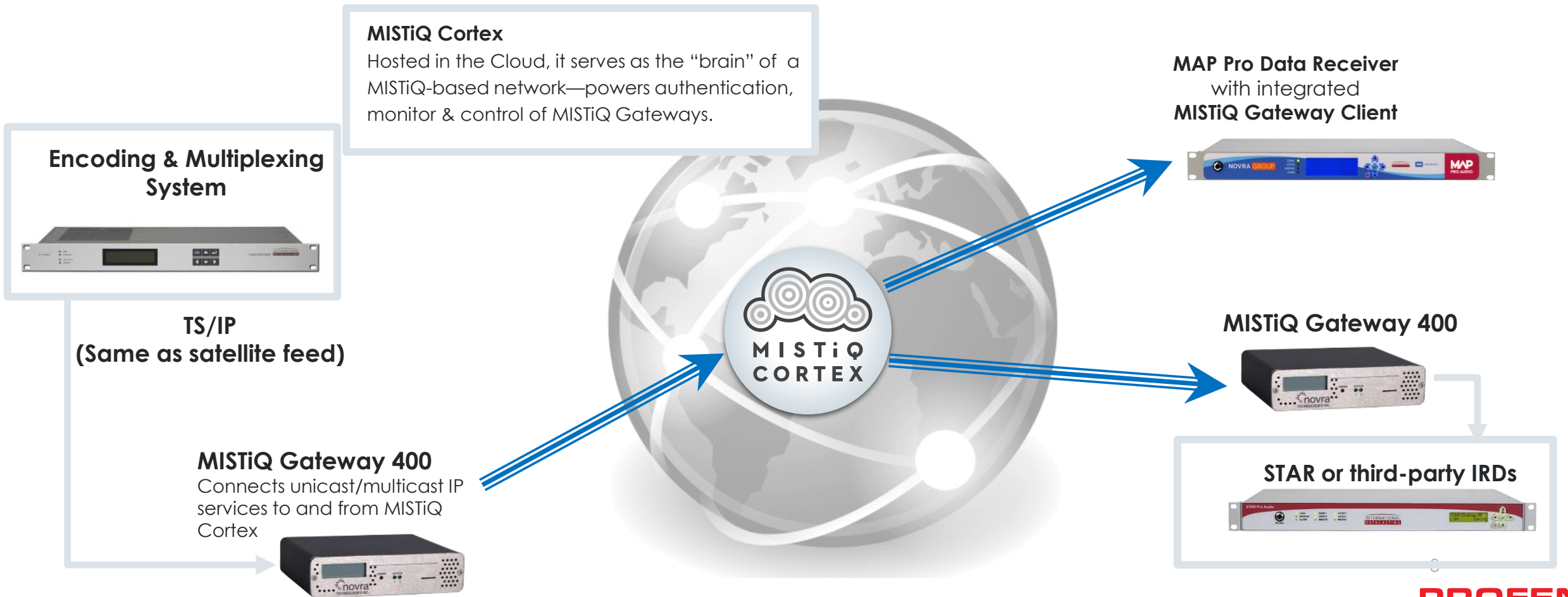## For FM Radio & Television Broadcasters

August 2022

ABOUT MISTIQ

MISTiQ is a broadcast network solution utilizing advanced technologies to enable high availability real-time program distribution via the Internet.

✓ **MISTiQ** enables professional private network and Internet distribution networks

✓ **MISTiQ** can add back-up redundancy to existing satellite networks—eliminating outages due to sun and rain fade as well as other outages

✓ Extends signal beyond a satellite footprint, for hybrid satellite and terrestrial networks

✓ Professional broadcast transmission, not just "internet radio"

✓ "Zero-config" approach makes setup and monitoring easy

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The Building Blocks of MISTiQ

MISTiQ is modular and versatile. MISTiQ Gateways negotiate the traffic and mitigate delay as well as interference. It's all controlled by MISTiQ Cortex hosted in the Cloud. Here's a simple audio network:

MISTiQ Cortex
Hosted in the Cloud, it serves as the "brain" of a MISTiQ-based network—powers authentication, monitor & control of MISTiQ Gateways.

MAP Pro Data Receiver
with integrated
MISTiQ Gateway Client

Encoding & Multiplexing System

**TS/IP
(Same as satellite feed)**

MISTiQ Gateway 400
Connects unicast/multicast IP services to and from MISTiQ Cortex

MISTiQ Gateway 400

STAR or third-party IRDs

MISTiQ CORTEX

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Internter Challenges

The internet is not a natural fit for broadcasters—network characteristics cause challenges for *real-time* **broadcasts**

- **Packet loss:** congested Internet routers discard packets

- **Jitter:** packets delivered out of sequence

- **Delay:** latency from sender to receiver

- **Bandwidth:** varying capacity from sender to receiver

- **Broadcast-quality signals in an IT environment:** difficult to configure, monitor, and troubleshoot

- **Security:** Internet is a high-risk environment

Typical packet loss rates:

- **MPLS** network: <0.001%
- **LAN**: <0.1%
- **Enterprise** campus: <0.5%
- Public **Internet**: upto 25%

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MISTIQ TO THE RESCUE!

MISTiQ tackles the inherent challenges of the internet with a combination of technologies including SRT (open-source Secure Reliable Transport—we're part of the SRT Alliance)
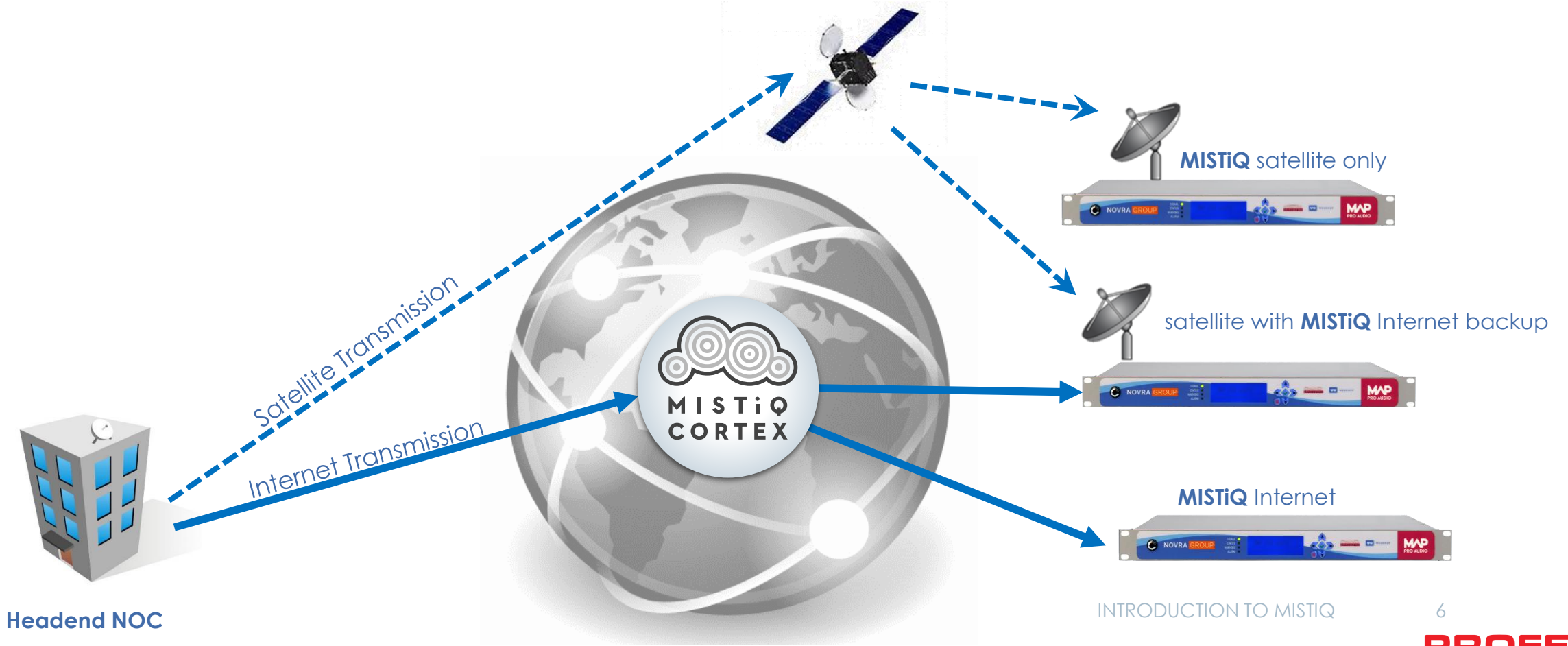
MITIGATION STRATEGIES

- **MISTiQ Cortex** is a virtualized, hosted and cloud-based **centralized management** platform for authorization, management and monitoring.

- **MISTiQ** has error recovery mechanism **minimizes the packet loss and jitter** typical with Internet connections and detects real-time network performance for optimal broadcast quality.

- **MISTiQ** supports **AES encryption** for end-to-end security

- **MISTiQ** has integrated **alarm, monitoring & control** functionality.

- **MISTiQ** can be fully **firewall protected** using Fortinet

SRTALLIANCE
SECURE RELIABLE TRANSPORT
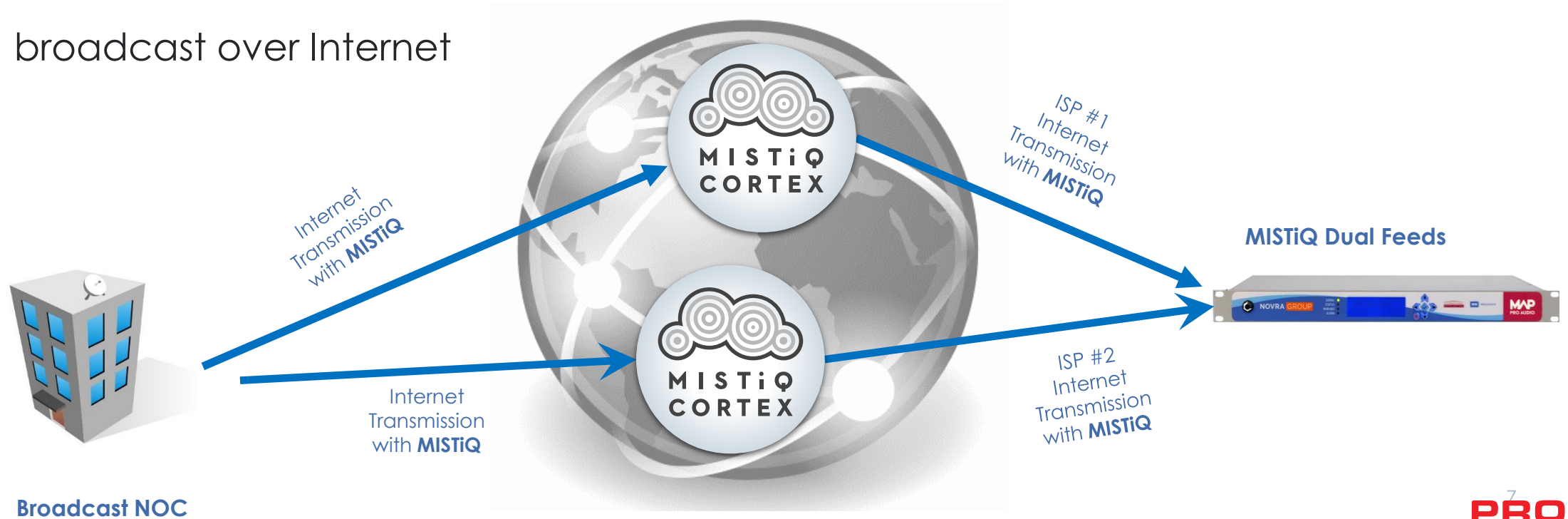
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MISTiQ

MISTiQ is an IP broadcast network solution utilizing advanced technologies to enable high availability real-time program distribution via the Internet.

Satellite Transmission

Internet Transmission

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MISTiQ satellite only

satellite with MISTiQ Internet backup

MISTiQ Internet

Headend NOC

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MISTiQ Contribution Link

MISTiQ provides **high availability via Private Network and Internet** IP networks utilizing packet loss mitigation technologies
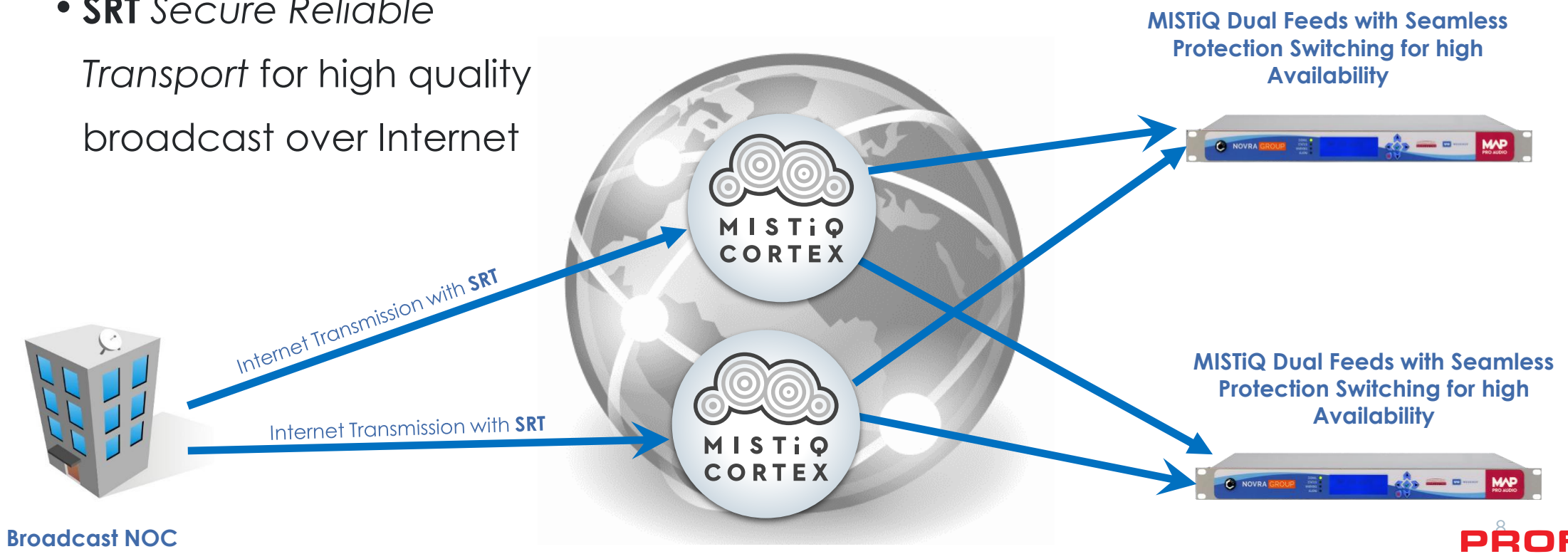
- **MISTiQ** *Secure Reliable Transport* for high quality broadcast over Internet

Internet Transmission with **MISTiQ**

Internet Transmission with **MISTiQ**

MISTiQ CORTEX

MISTiQ CORTEX

ISP #1 Internet Transmission with **MISTiQ**

ISP #2 Internet Transmission with **MISTiQ**

MISTiQ Dual Feeds

Broadcast NOC

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MISTiQ
High Availability
IP Network

MISTiQ provides high availability via Private Network and Internet IP networks utilizing packet loss mitigation technologies

- **Dual feeds**

- **SRT** *Secure Reliable Transport* for high quality broadcast over Internet

MISTiQ Dual Feeds with Seamless Protection Switching for high Availability

MISTiQ Dual Feeds with Seamless Protection Switching for high Availability

Internet Transmission with **SRT**

Internet Transmission with **SRT**

Broadcast NOC

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THE ALTERNTIVE TO SATELLITE

We provide end-to-end solutions, including headend, management and control systems as well as a range of receivers for networks ranging from simple to complex.

BACKUP FOR SATELLITE

- Uses existing head-end equipment

- Mitigate sun transit & rain fade outages

- Facilitate satellite carrier migration

HYBRID SATELLITE & INTERNET

- Broadcast to satellite and Internet locations

- Reach locations outside the satellite footprint

INTERNET ONLY

- No more satellite costs

- No more uplinks

- No more dishes

- No more interference

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USER INTERFACE

Modern mobile device-oriented web interface facilitates **MISTiQ** management from anywhere, with proper security credentials.

Desktop version

Mobile device version

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