



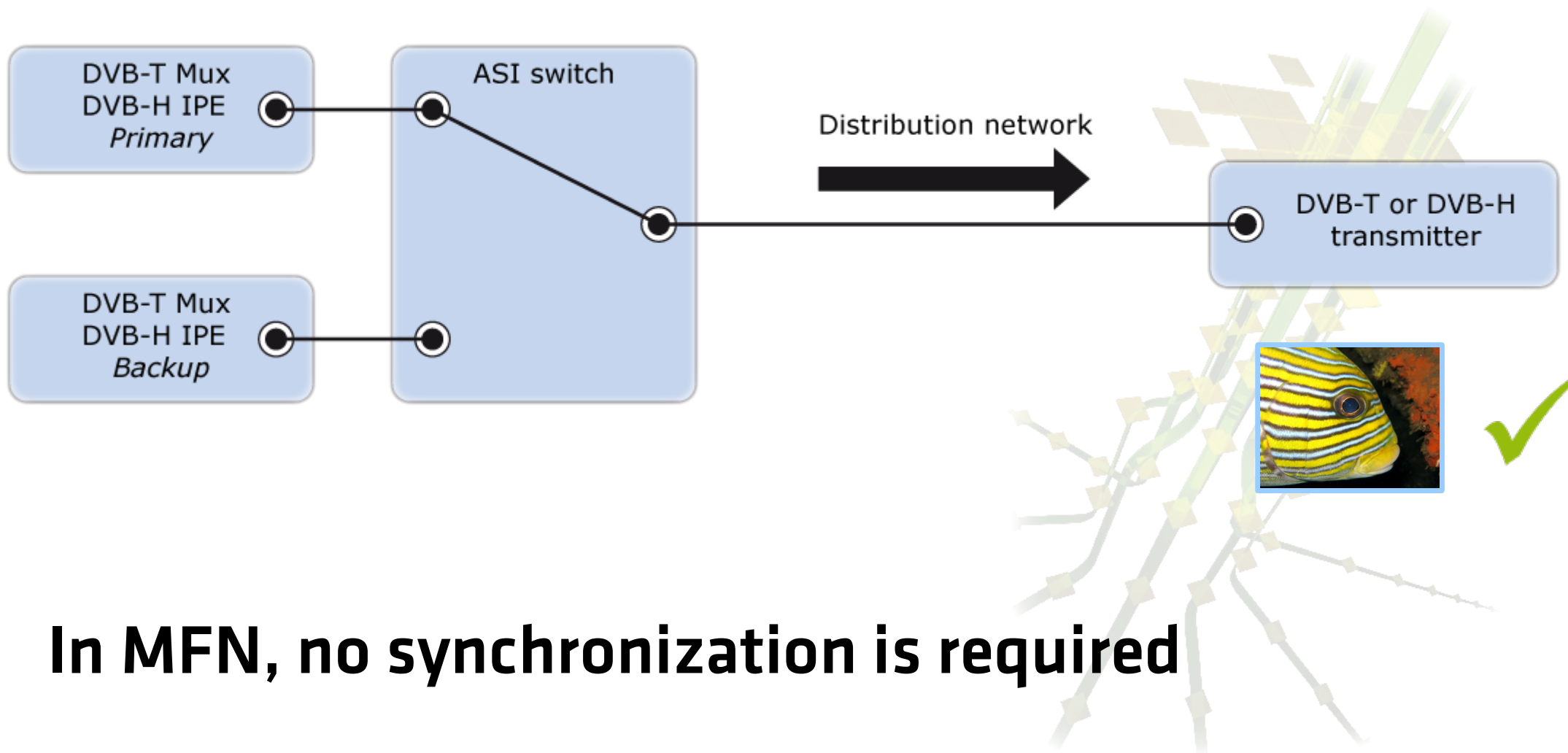
End-to-end Single Frequency Network Solution

- **ENENSYS offers a unique SFN expertise**
- **Seamless SFN switch over...**
 - ... from head-end to transmitters**
- **Every system interconnection becomes a point of strength of your SFN**

- **Background: Redundancy in MFN**
- Redundant SFN Adapters
 - Not synchronized
 - Synchronized « SFN Guard »
- SFN over IP
- Redundant path for SFN distribution
 - Desynchronized streams
 - Re-synchronized streams « SynFoNizer »

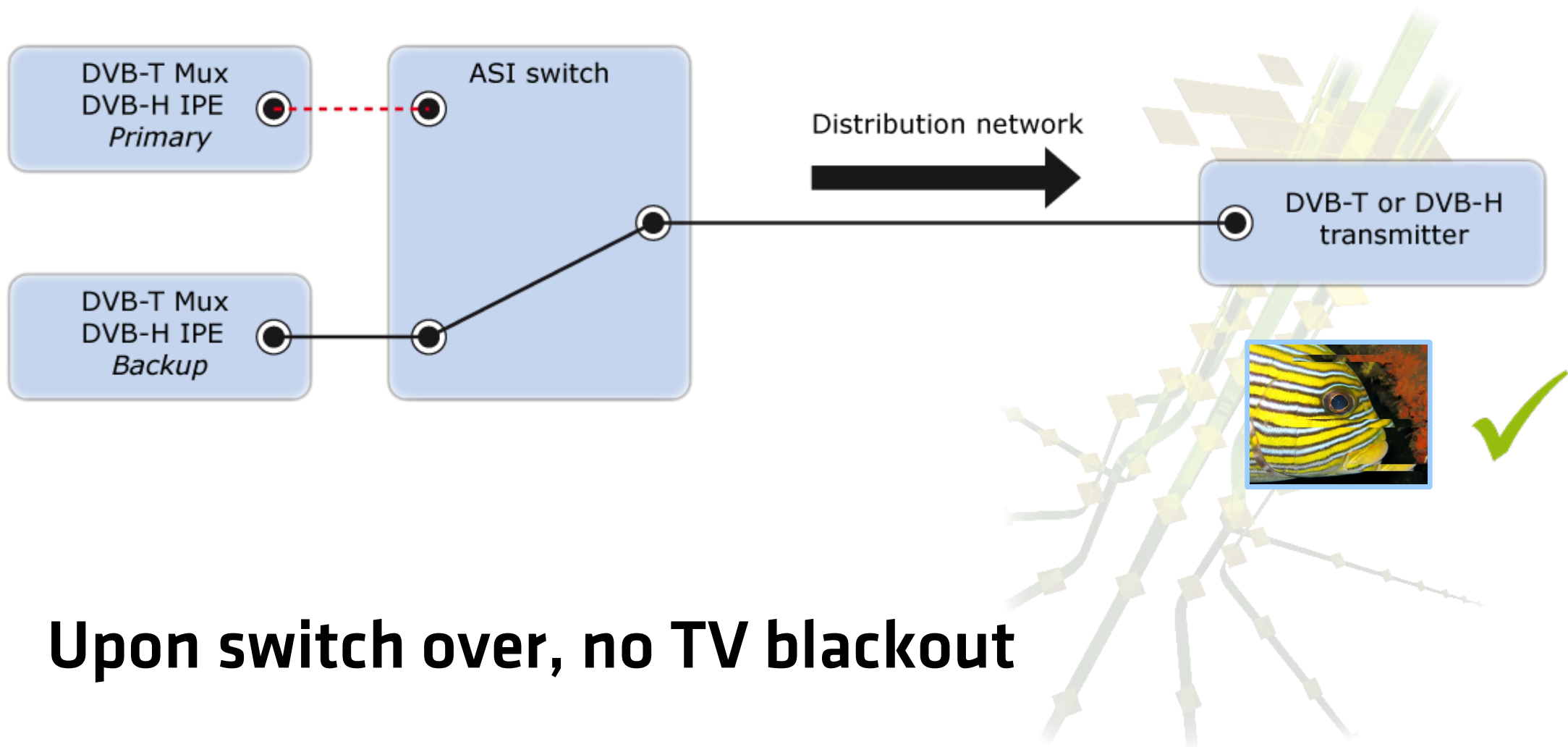


Background: Redundancy in MFN



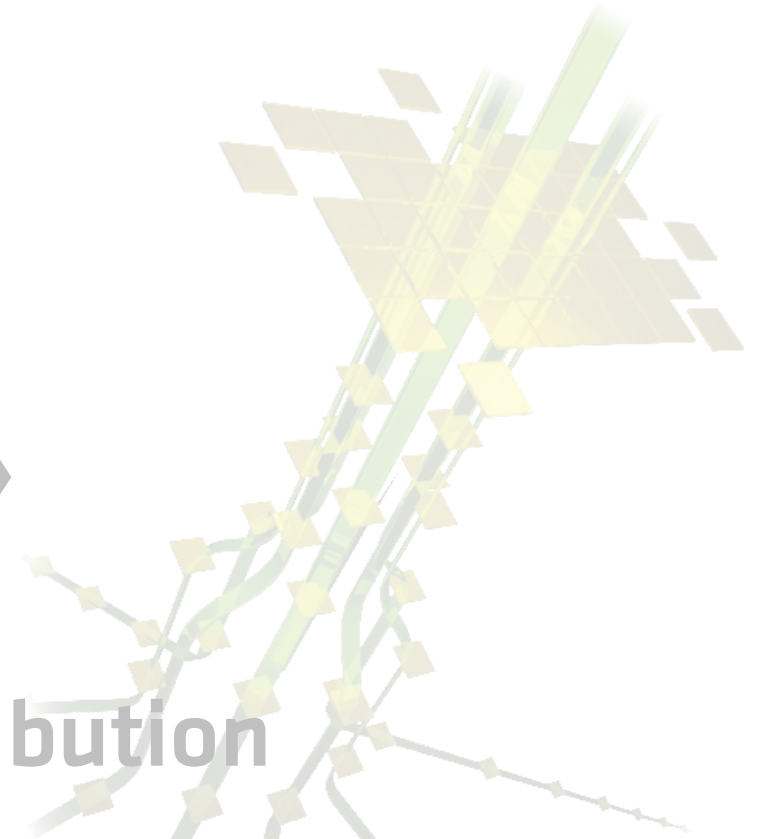
In MFN, no synchronization is required

Background: Redundancy in MFN

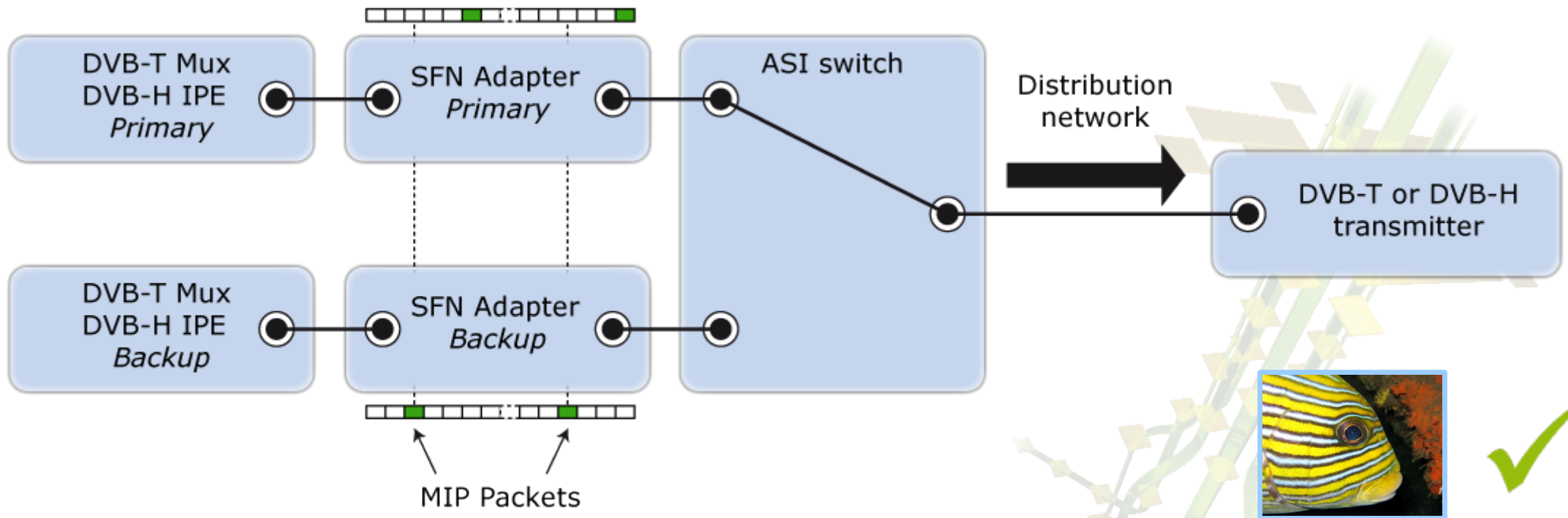


Upon switch over, no TV blackout

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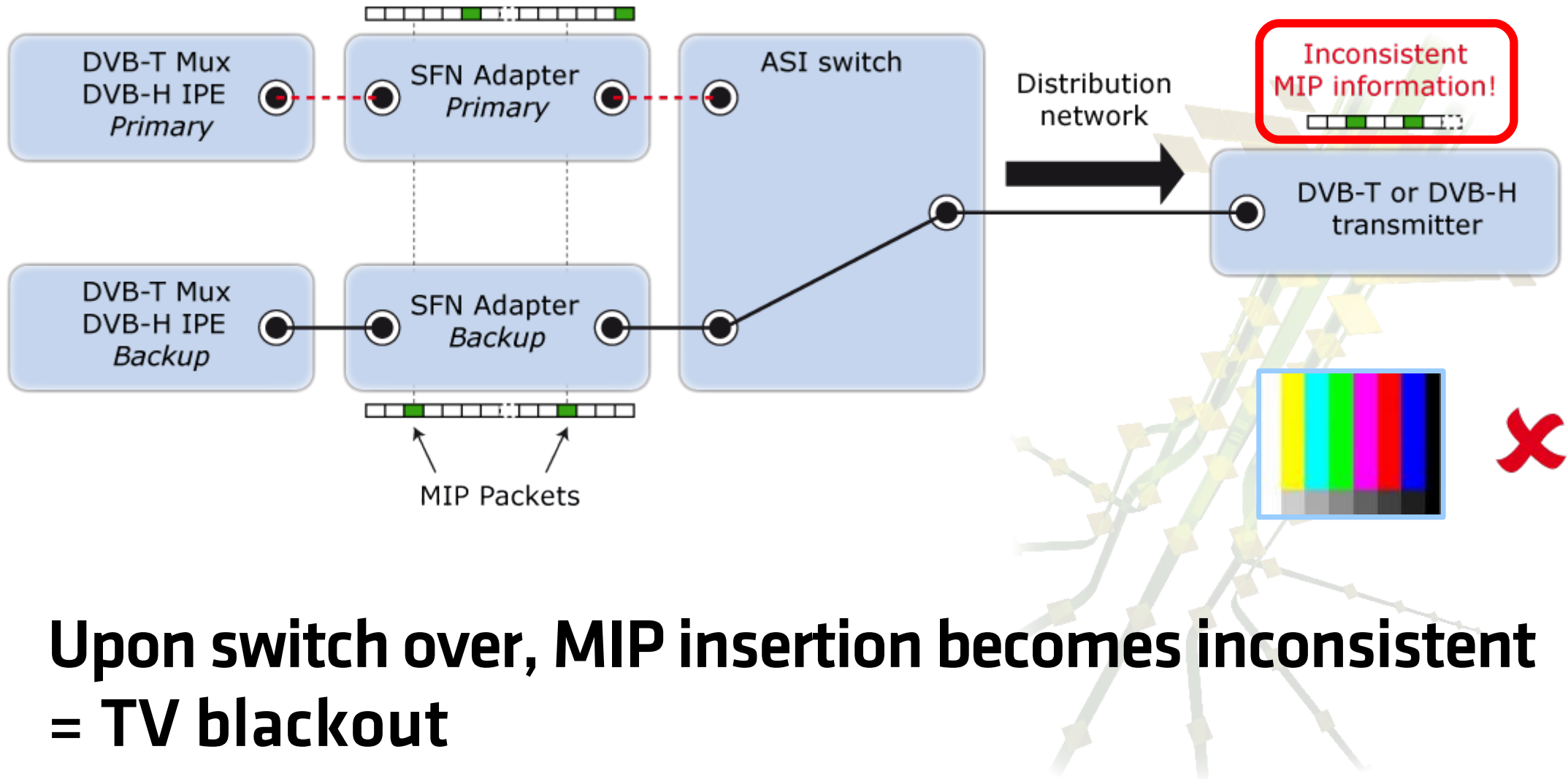


Redundant SFN Adapters – No synchronization



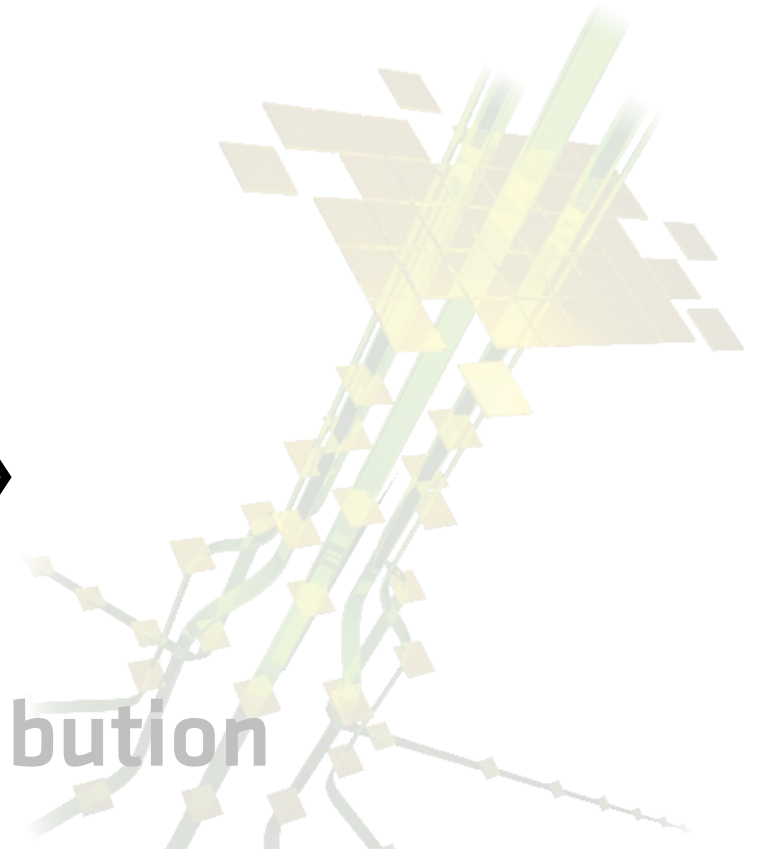
SFN Synchronization is achieved by SFN Adapters

Redundant SFN Adapters – No synchronization

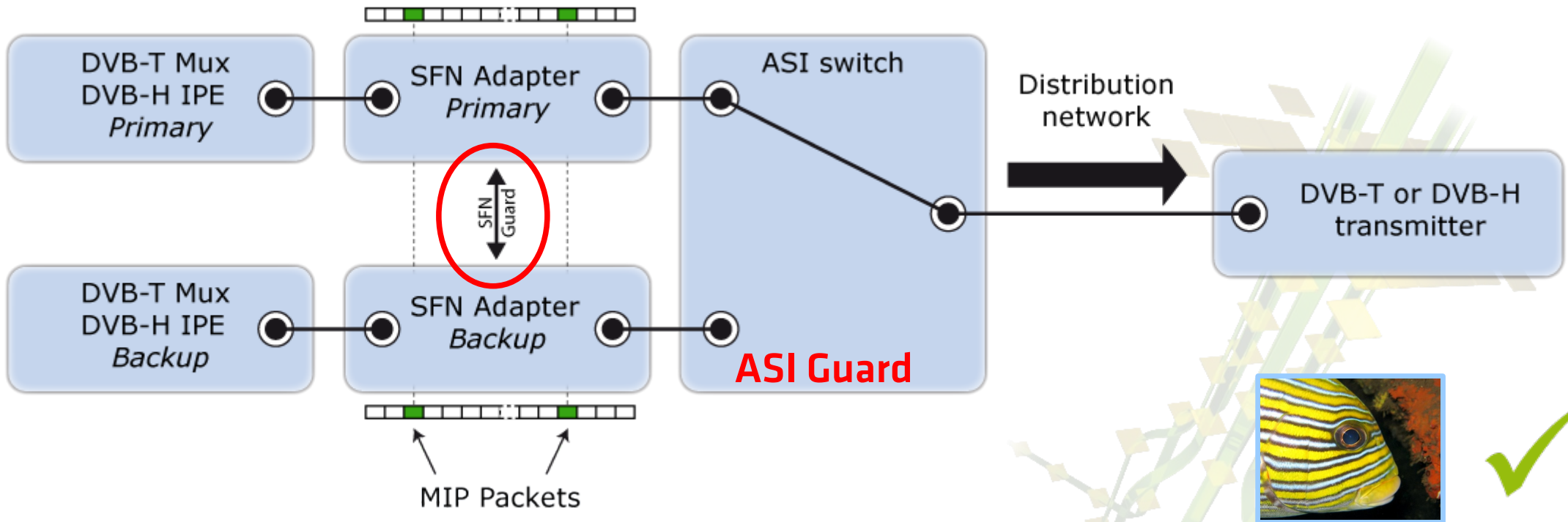


**Upon switch over, MIP insertion becomes inconsistent
= TV blackout**

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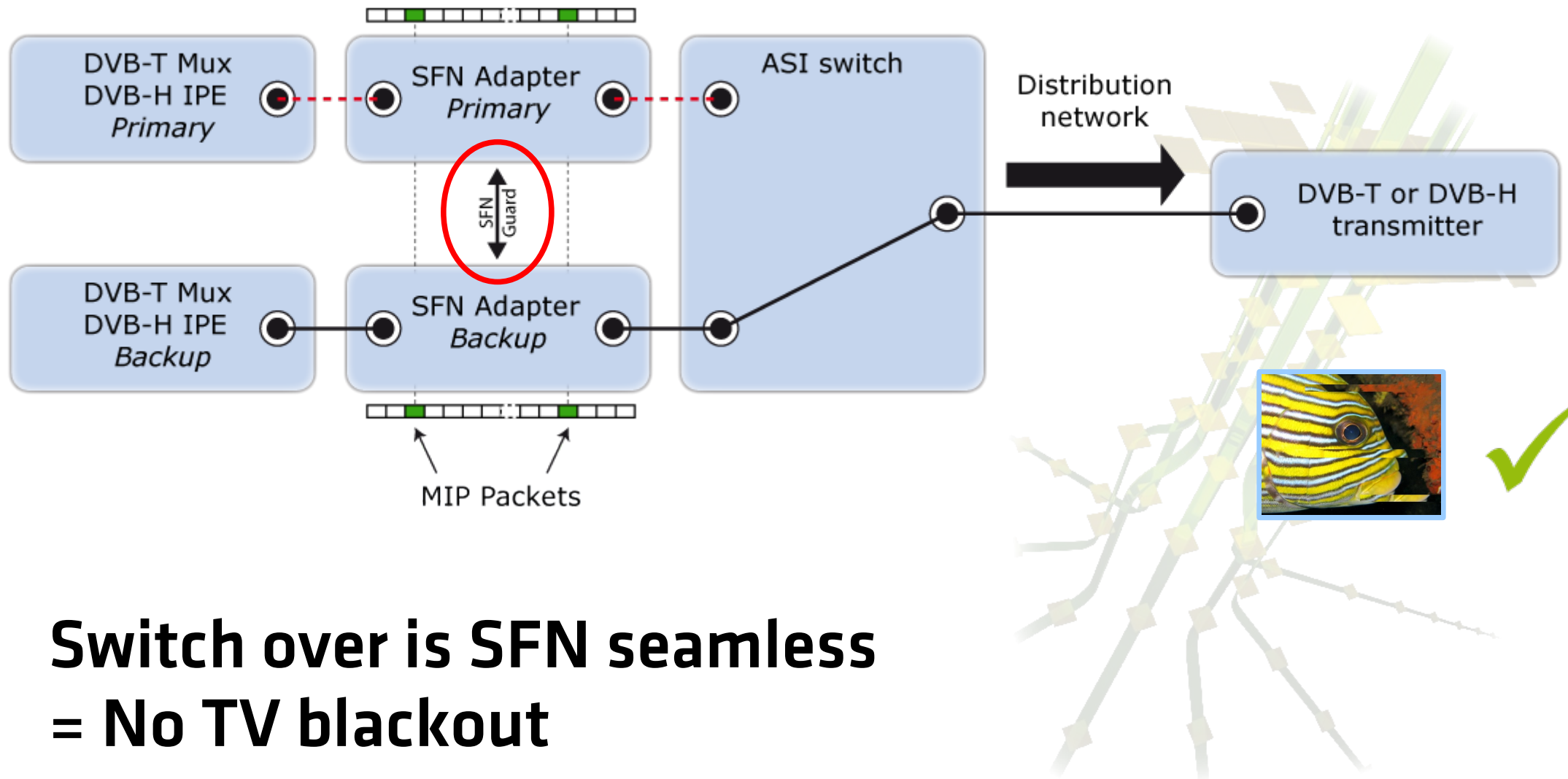


Redundant & synchronized SFN Adapters

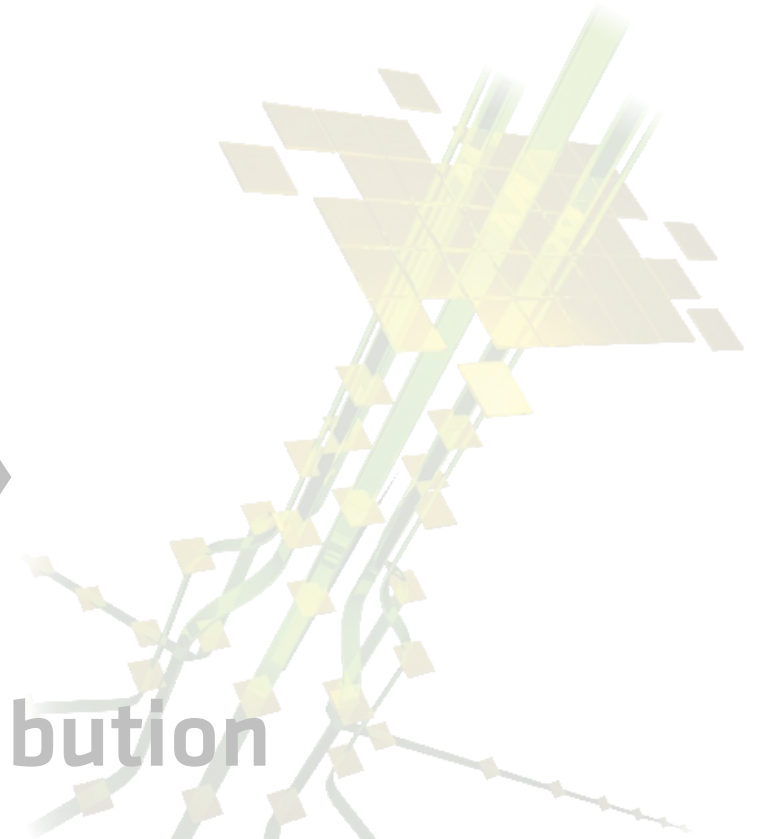


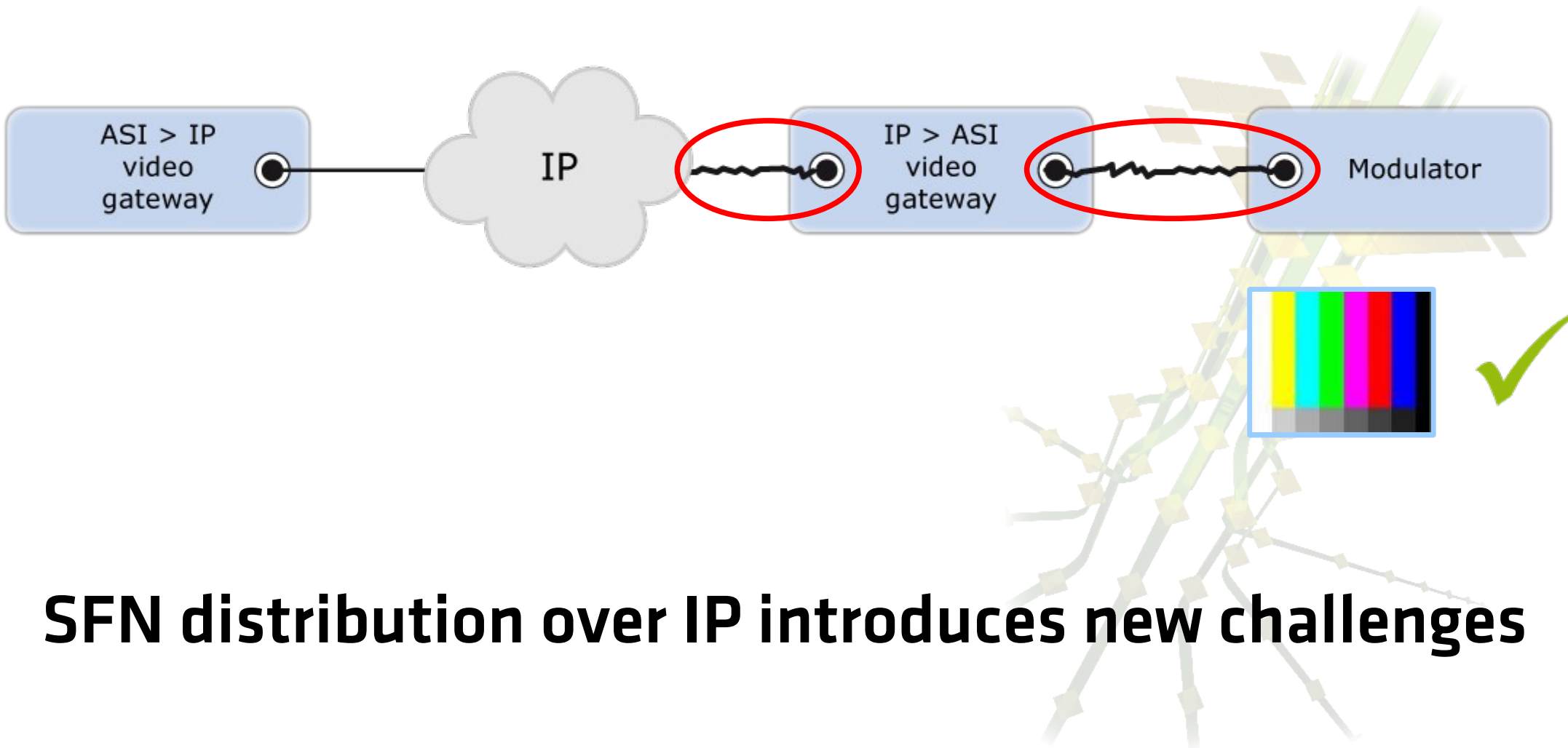
- « **SFN Guard** » synchronizes SFN Adapters
- « **ASI Guard** » enables seamless switch-over

Redundant & synchronized SFN Adapters

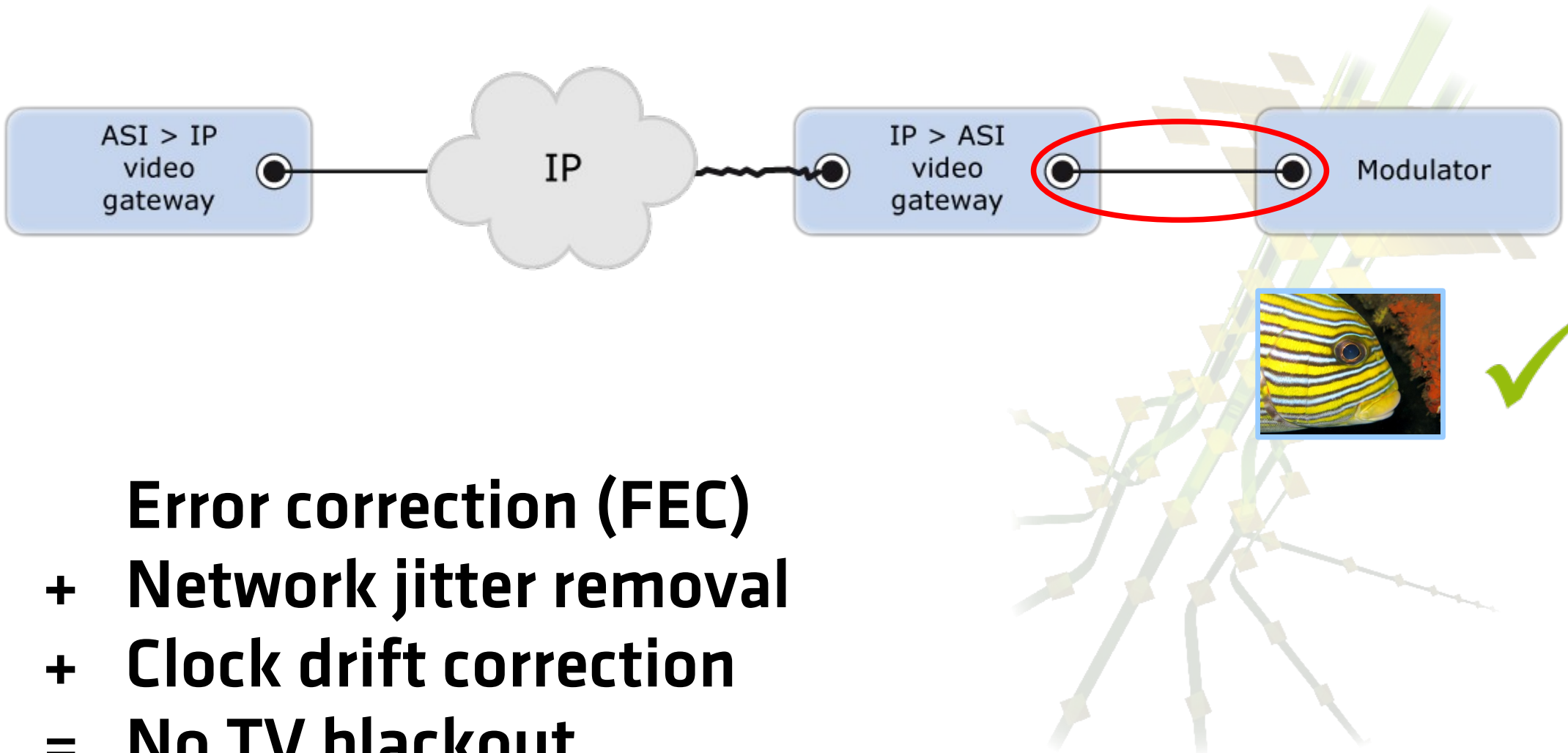


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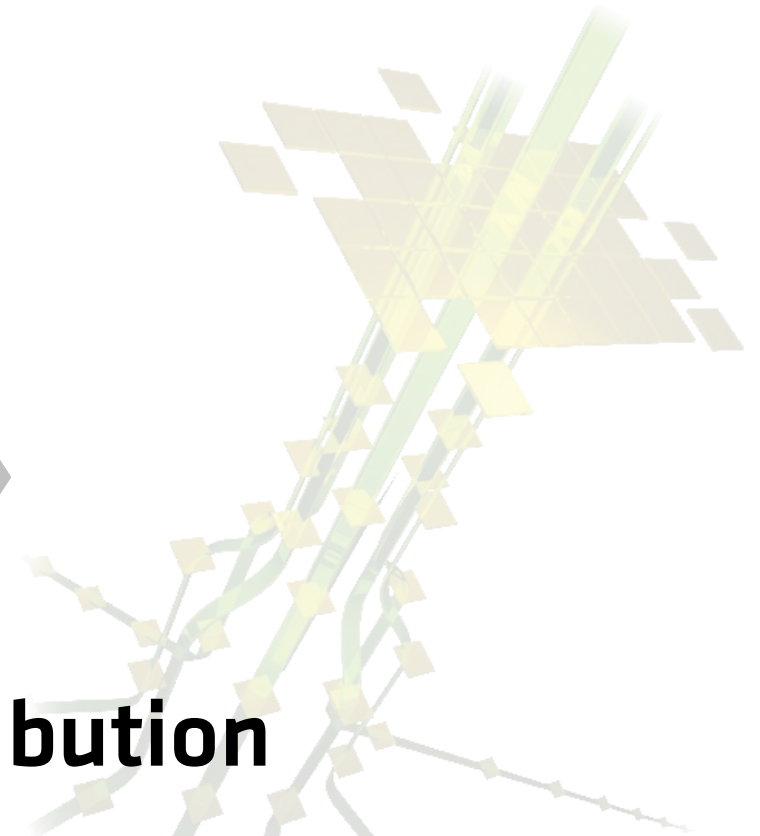


SFN distribution over IP introduces new challenges

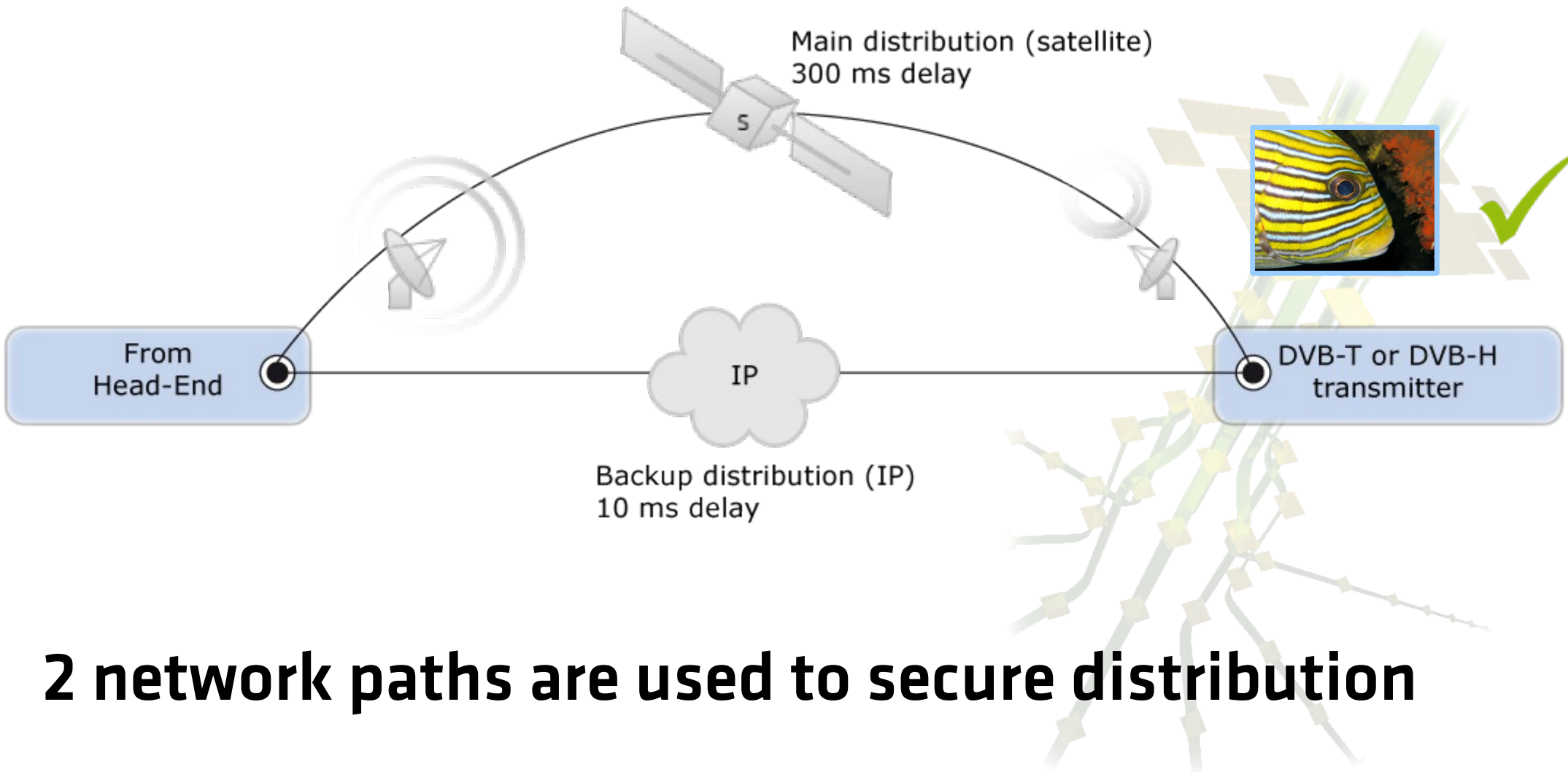


- Error correction (FEC)**
- + Network jitter removal**
- + Clock drift correction**
- = No TV blackout**

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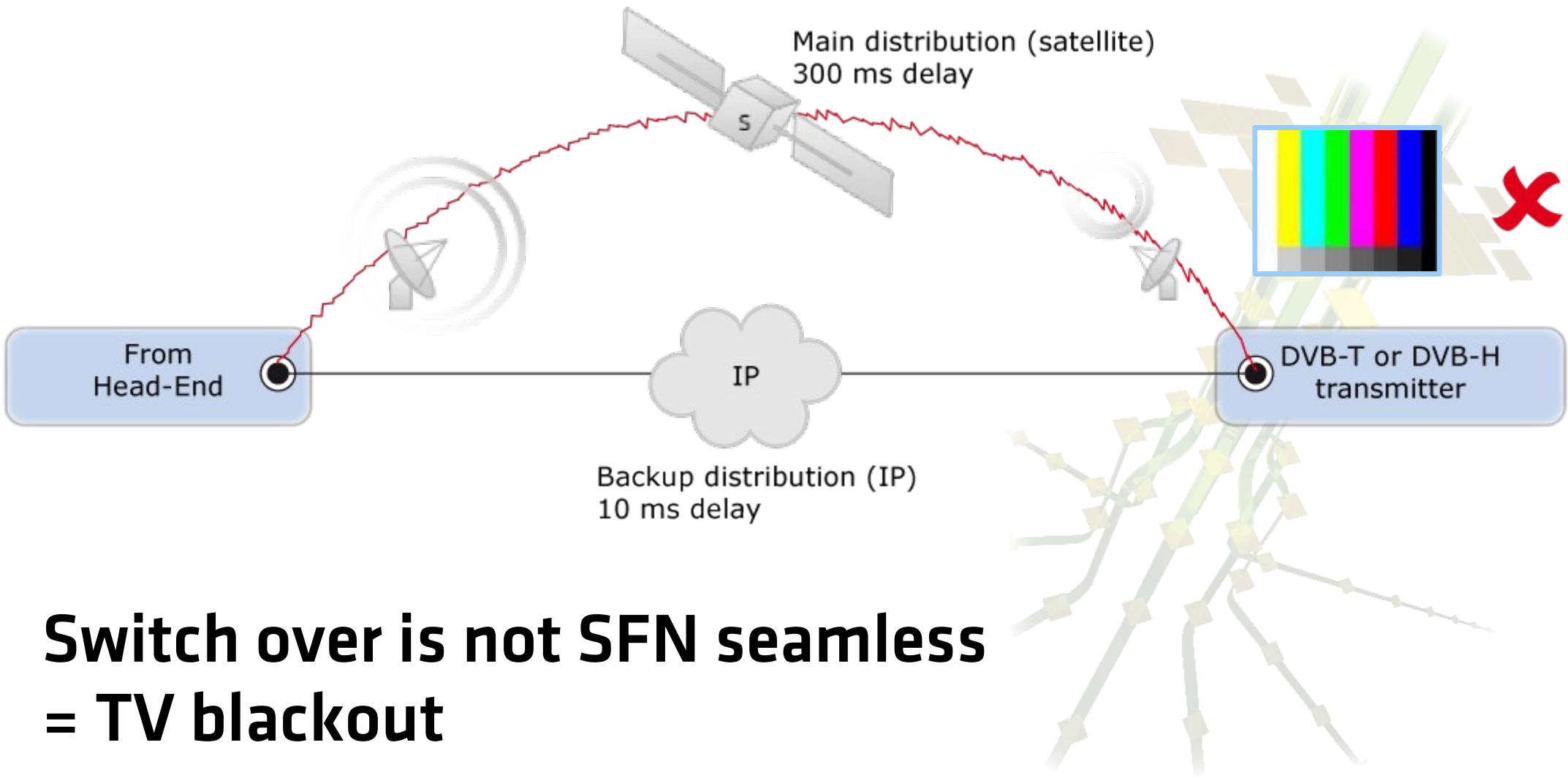


Redundant paths – No re-synchronization



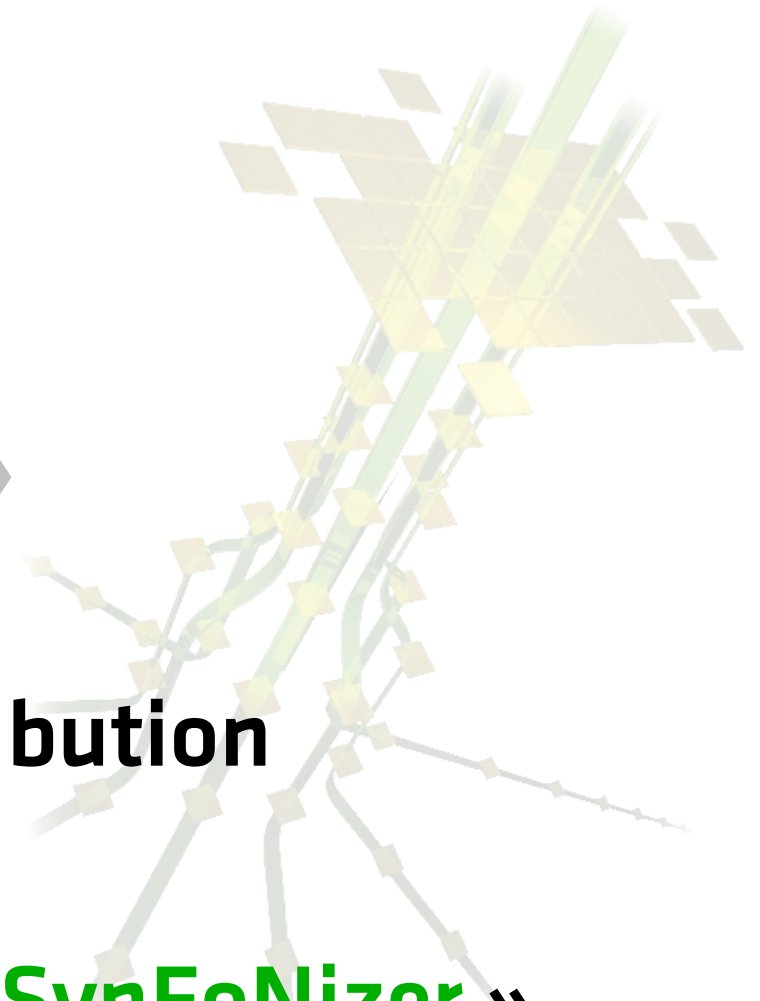
2 network paths are used to secure distribution

Redundant paths – No re-synchronization

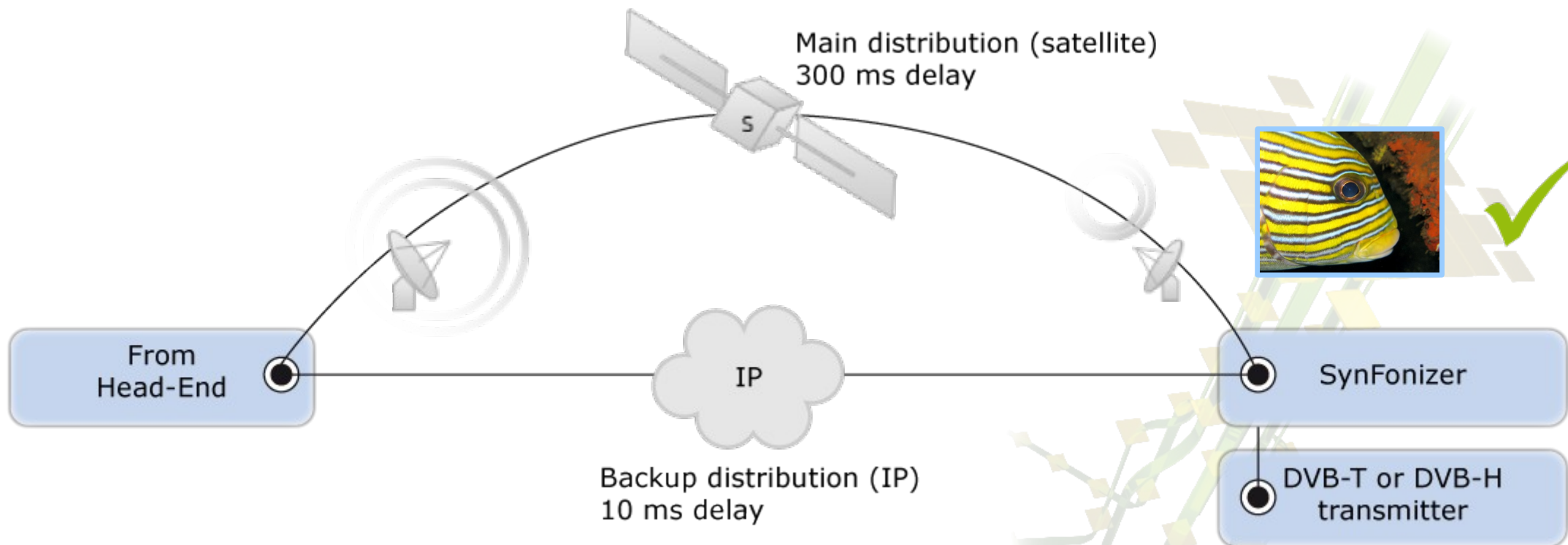


**Switch over is not SFN seamless
= TV blackout**

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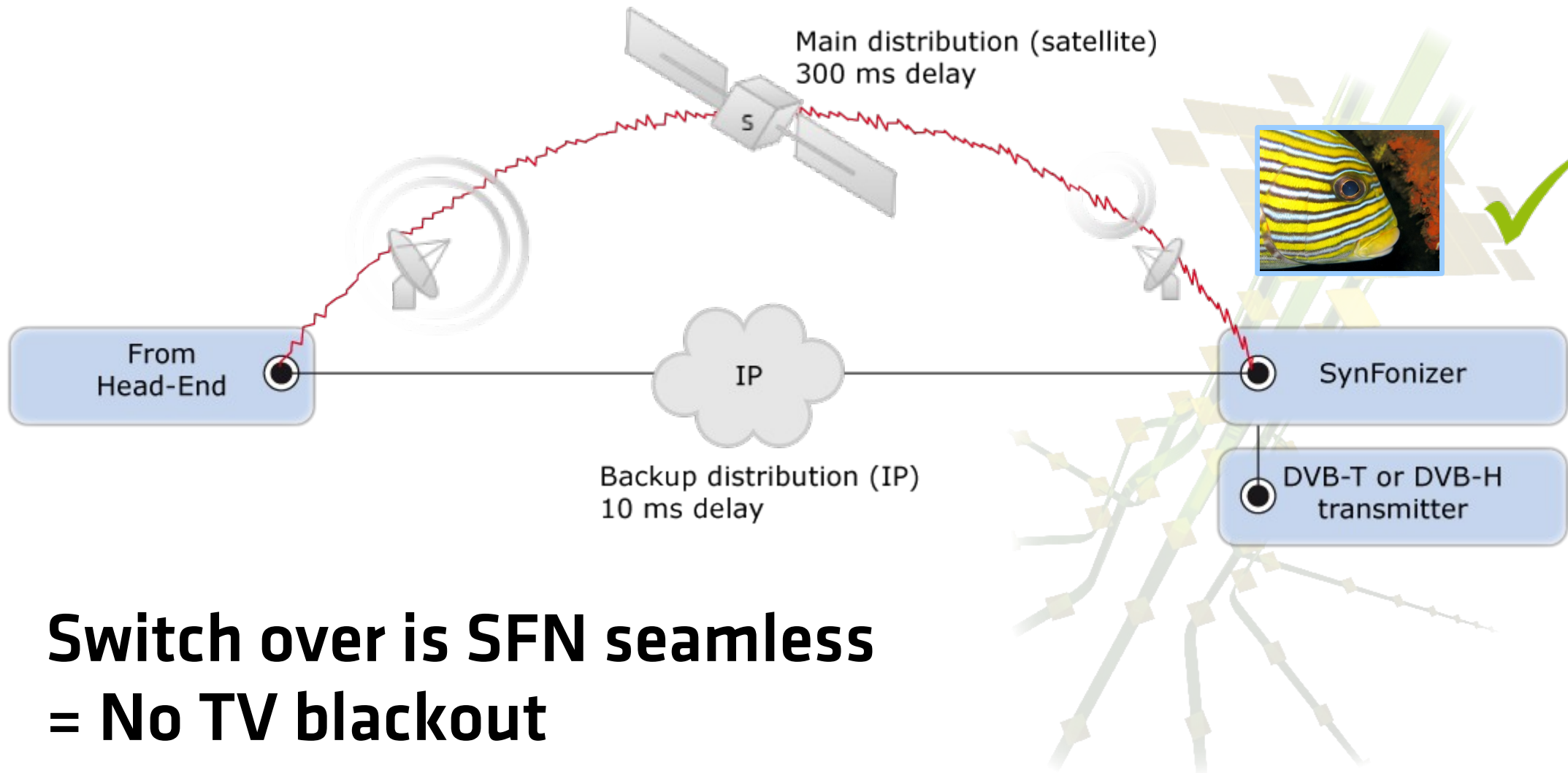


Redundant paths - Re-synchronization



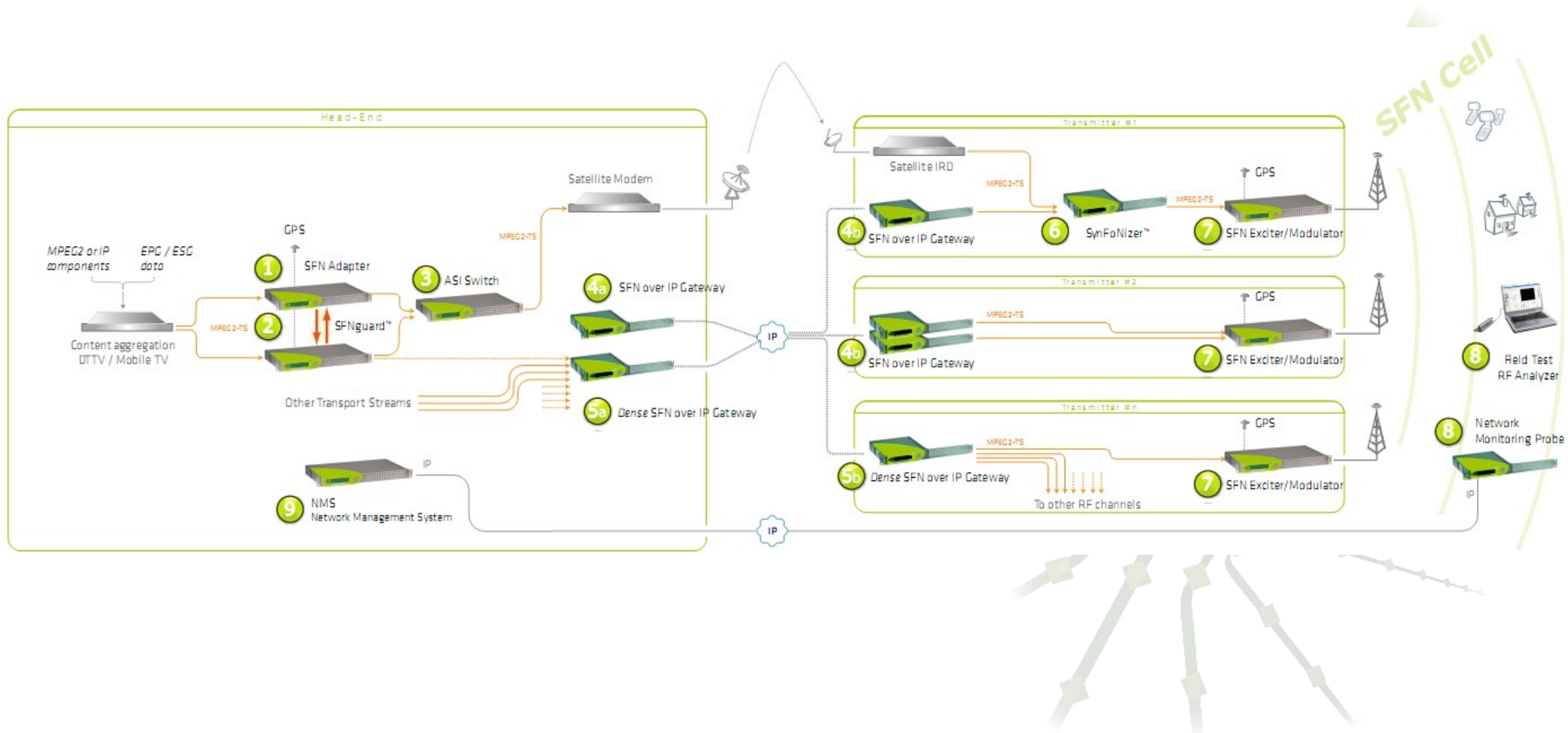
« **SynFoNizer** » synchronizes distribution paths

Redundant paths - Re-synchronization



**Switch over is SFN seamless
= No TV blackout**

ENENSYS' SFN Solution





SFN Adapter « **NN6-MIP** »

Seamless switch option « **SFN Guard** »



ASI Switch « **ASIGuard** »

Seamless SFN switch-over with « **SFNGuard** »



IP video gateways

« **FastCaster** » & « **GigaCaster** »

SFN preservation option « **SFN over IP** »

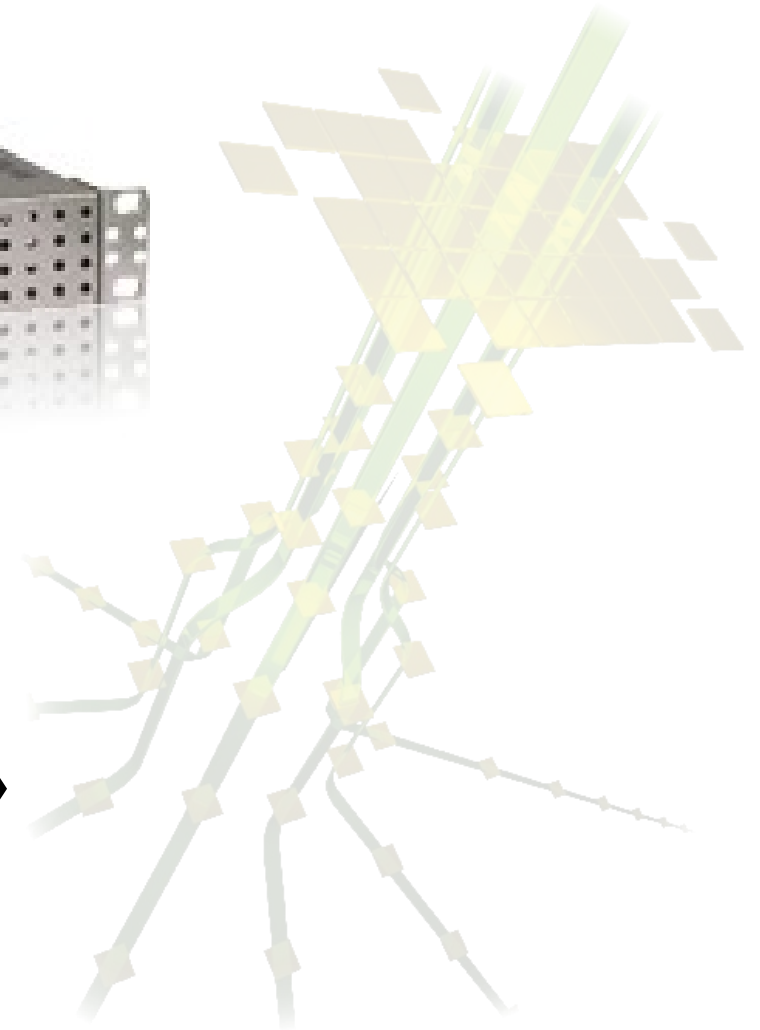
Paths re-synchronization



Paths re-synchronization « **SynFoNizer** »



SFN modulators « **NetMod** »



**Turn every system interconnection into a
point of strength of your SFN**

