

# Content and networks cooperation to accelerate digital transformation

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# How content drives shared value

High-quality content drives demand for broadband. That's why Netflix's big investments have big benefits for Internet Service Providers (ISPs).

Netflix spends billions on high-quality movies and TV series each year

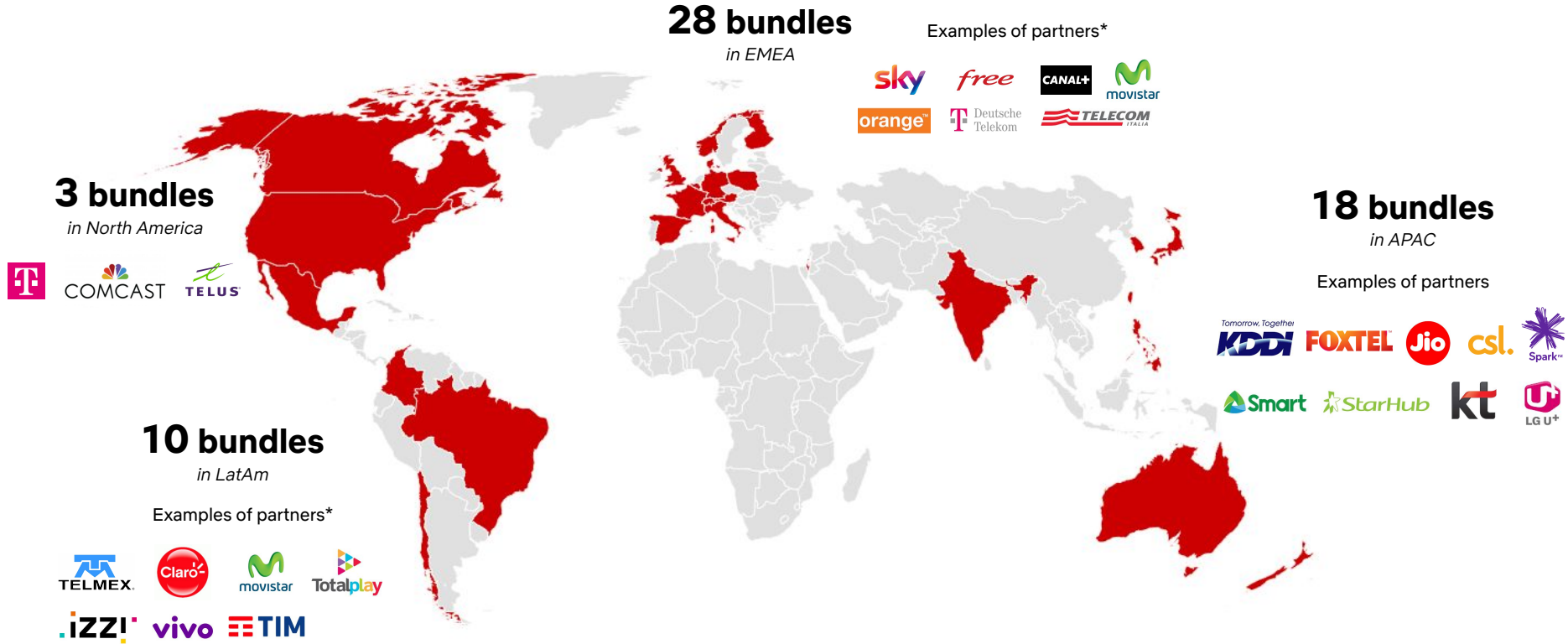


Which drives consumers to purchase faster broadband plans from their ISP

This increases customer demand for video streaming

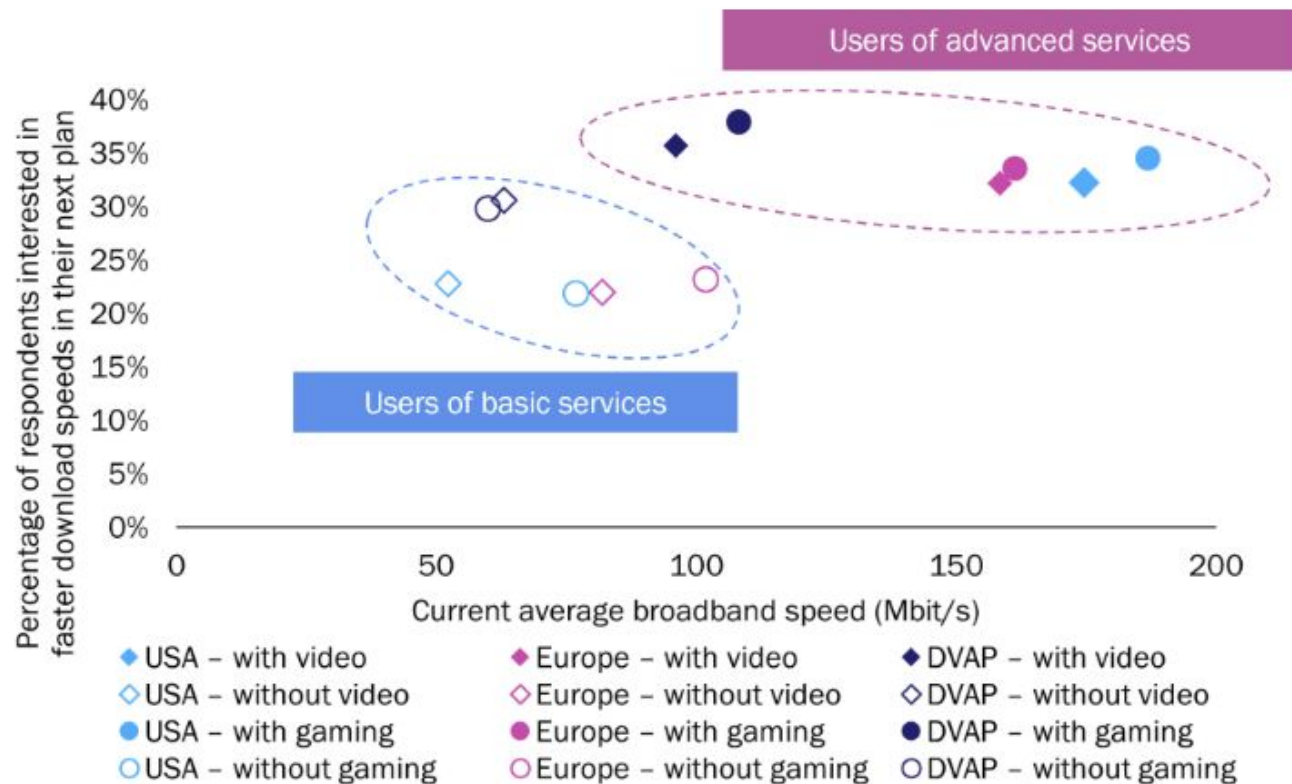


# Netflix has launched bundles with 50+ partners worldwide



\* : some operators have launched bundles with Netflix in multiple countries

**Figure 2:** Correlation between the use of advanced services and broadband speeds, developed Asia-Pacific (DVAP), Europe and the USA, 2021

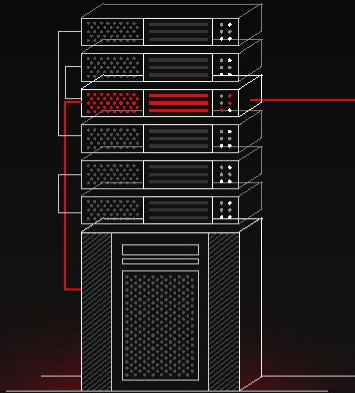


Source: Analysys Mason

# The long haul

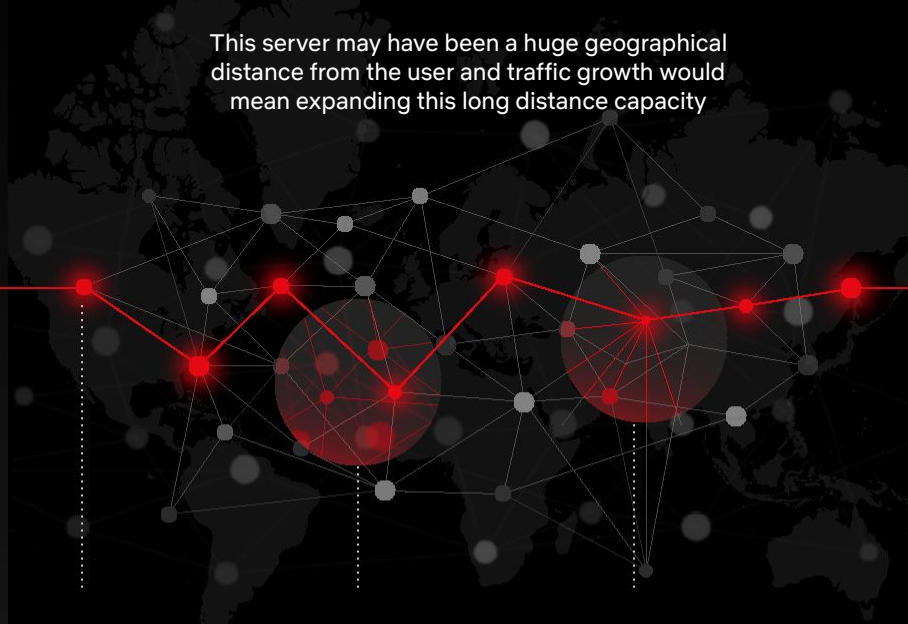
## SINGLE SOURCE

When a user requested video Content, it was served from a single location



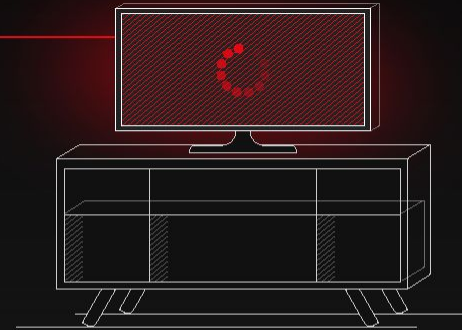
## CONGESTED DELIVERS

This server may have been a huge geographical distance from the user and traffic growth would mean expanding this long distance capacity



## HUGE EXPENSE

Securing global connectivity would come at a high cost to ISPs (Internet Service Providers) who would have to purchase or build these backhaul connections



### Long way round

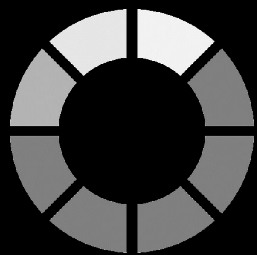
Data would be forced to travel through many routers and networks

### Traffic jams

Each router could be congested by high traffic volumes

### Lost in transit

Congestion would lead to 'packet loss', causing quality to degrade

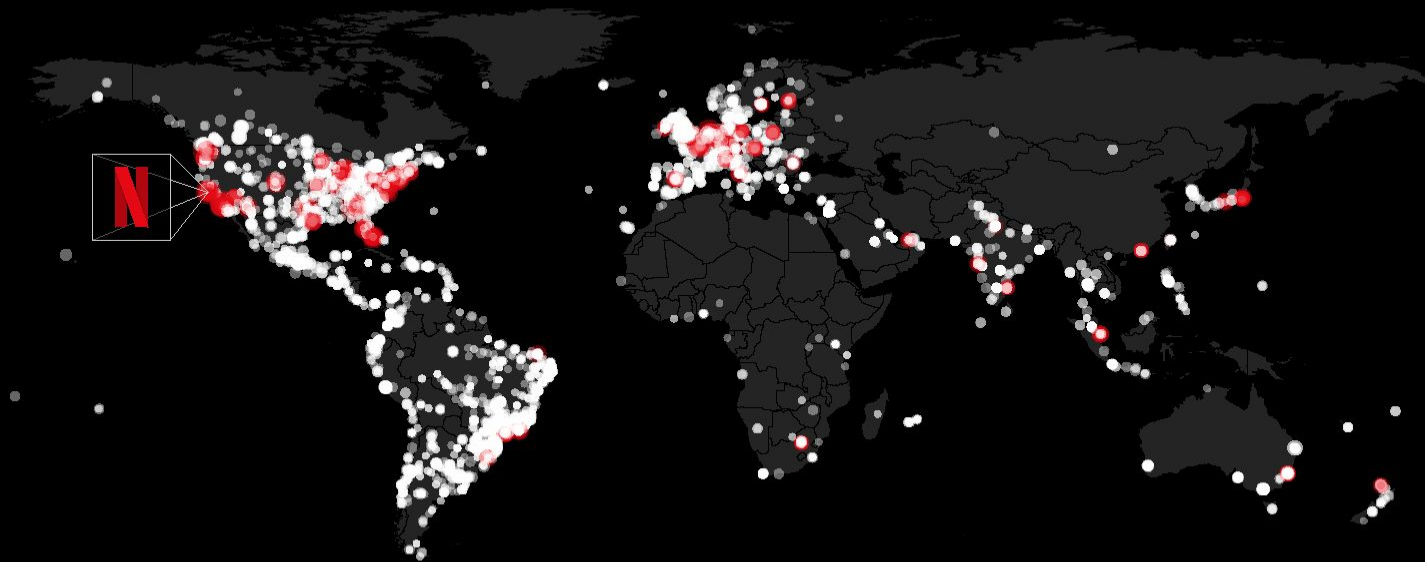


# Bringing content closer

## OPEN CONNECT

Netflix now stores its content close to every member - **no matter where in the world they are, with all networks, big or small.**

Open Connect is Netflix's content delivery network. It's made of more than **18,000 Open Connect Appliances (OCAs)** spread across **167 countries.**



KEY

**N** Netflix headquarters in California, USA

● Netflix OCAs  
Located within public internet exchange points

● OCAs gifted to ISPs (Internet Service Providers)

Number of content caches per server



Note: Data as of 2021.

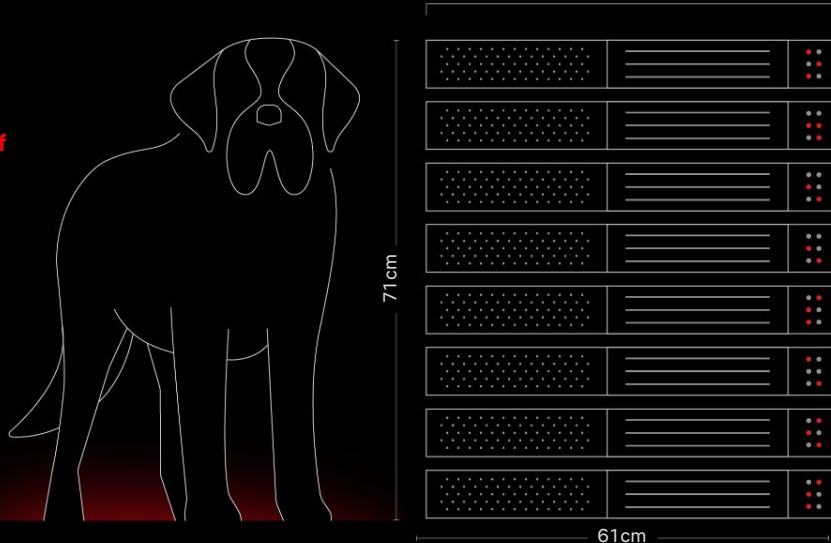


# Small but mighty

Netflix content library has over 7,800 titles in 167 countries. Each Open Connect location is very powerful but surprisingly small and energy efficient.

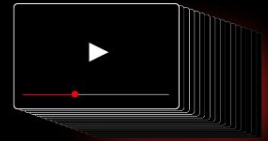
## How small?

A country's **entire Netflix library fits into about half a rack** of servers. A half rack is around the size of a big dog.



## How powerful?

A half rack can serve **200,000 streams** simultaneously.



## How efficient?

It takes just **5.6kw** to power a half rack. The same amount of power you'd need to run a small house.



# Encoding



How to keep reducing bandwidth and providing high resolution experience  
| on **all devices**



JPEG, 69KB

**NETFLIX**



The Adventures of  
**PUSS IN BOOTS**



AVIF, 41KB

**NETFLIX**



The Adventures of  
**PUSS IN BOOTS**



# Fast times

Netflix recommends just 5Mb per second to stream a high definition movie on Netflix on a fixed line connection. That means a Netflix member with a high speed broadband connection has enough bandwidth to stream multiple HD videos at the same time.

How many could you watch at once?



25Mbps

**5 films**



100Mbps

**20 films**



1,000Mbps

**200 films**

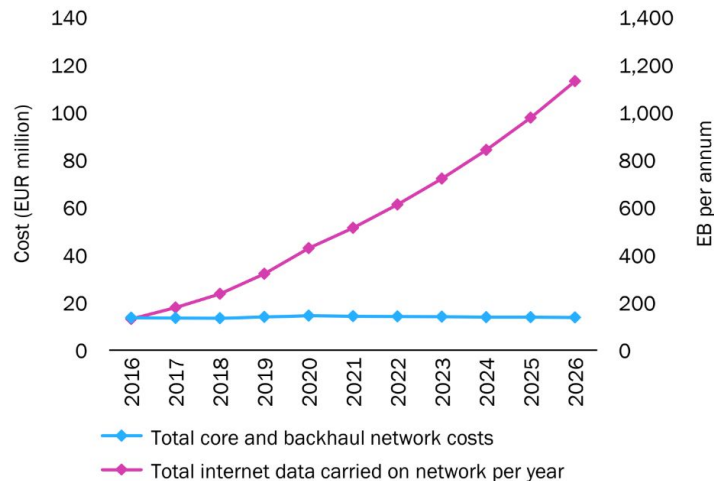
**\$1.2B**

Estimated. network savings for thanks to Open Connect in 2021

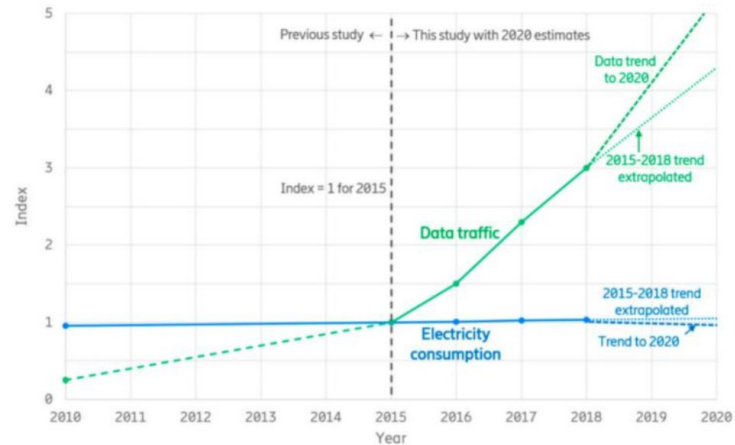
# Usage growth is an opportunity, not a cost

Studies and regulators show that partnerships between content providers and ISPs ensure that **growing demand from end users can be handled sustainably without increasing network costs over time**. Entertainment is not a cost that networks have to bear — it generates the demand they need for growth.

Annualised traffic vs. traffic-dependent network costs, for an efficient ISP, UK, caches in all metro nodes



Electricity consumption and data traffic for the reporting ETNO operators of 2015–2018 (indexed 2015 = 1)



Source: [Analysys Mason](#), [Malmodin](#), [BEREC](#), [Ofcom](#)

**Thank you**