

Dear colleagues,
NCDP is a work group developing a Nordic network for remote presence by deploying new technology and methods. We provide members with know-how and support on the remote low latency format.
At present 130+ Nordic organisations of culture and music education have joined NCDP. Recently Coventry University has acquired NCDP spec-approved hardware and will soon join our network!

Collaboration and latest news

Stockholms Musikpedagogiska Institut (SMI) is now part of the network and they are looking for cooperation with culture and music schools. Video [here](#)

Turku University of Applied Sciences in Finland, have acquired 2 Nimbras and are setting up a cooperation with SMI on remote music education.

In the spring we presented NCDP at NPAPW19 in Prague. Info [here](#)
The next conference will be held in New York 2020 and will likely be back in Europe in 2021.

By collaborating and pooling our resources we are able to get the cost levels down.
For support and information please contact us. You can also find information at www.ncdp.eu.

Hardware

In order to access the NCDP network you need hardware for a remote station. This includes monitors, microphones, speakers and SDI cameras.
We have identified 3 kits (remote stations) which range between 8100-15600€ depending on your needs.

Connection

In addition you need a good connection (10Gb) and a centrally placed Nimbra that converts optical signals into sound and picture. With the 50% NCDP discount the cost ranges between 22-28 000€ depending on how many card slots are being used. If you do not have access to 10Gb "last mile" connections you might need a smaller Nimbra locally (5-7000€) as well.



Coventry University



In Sweden NCDP has an arrangement with a telecom provider to deliver 10Gb connections for 490€/month. On the Åland islands we are able to get that bandwidth as low as 149€/month. The national university network provider (NREN) might also be able to help with connections.

Development

In Finland and Sweden NCDP is looking at a model where regions and municipalities fund the infrastructure hardware, and the end users fund the connections and remote stations. Government, Nordic or EU funding might also be available.

What can you do to get going?

1. Find partners you would like to cooperate with within the NCDP network (ideally within 500km).
2. If your present budget does not allow you to invest in a remote station, including a connection, some members in the network have been successful in applying for additional funding from the municipality, the regional council or other sources. NCDP is looking into long term renting of equipment on a monthly basis.
3. Together with your partners contact and inform your regional councils and the representatives responsible for culture, education, regional development or digitalization, whomever seems most interested in developing your digital presence.

NCDP can provide good reasons and further information when needed.

[Please participate in our inquiry for music schools and help us inform regional and national decision makers.](#)

Best Regards,
The NCDP team
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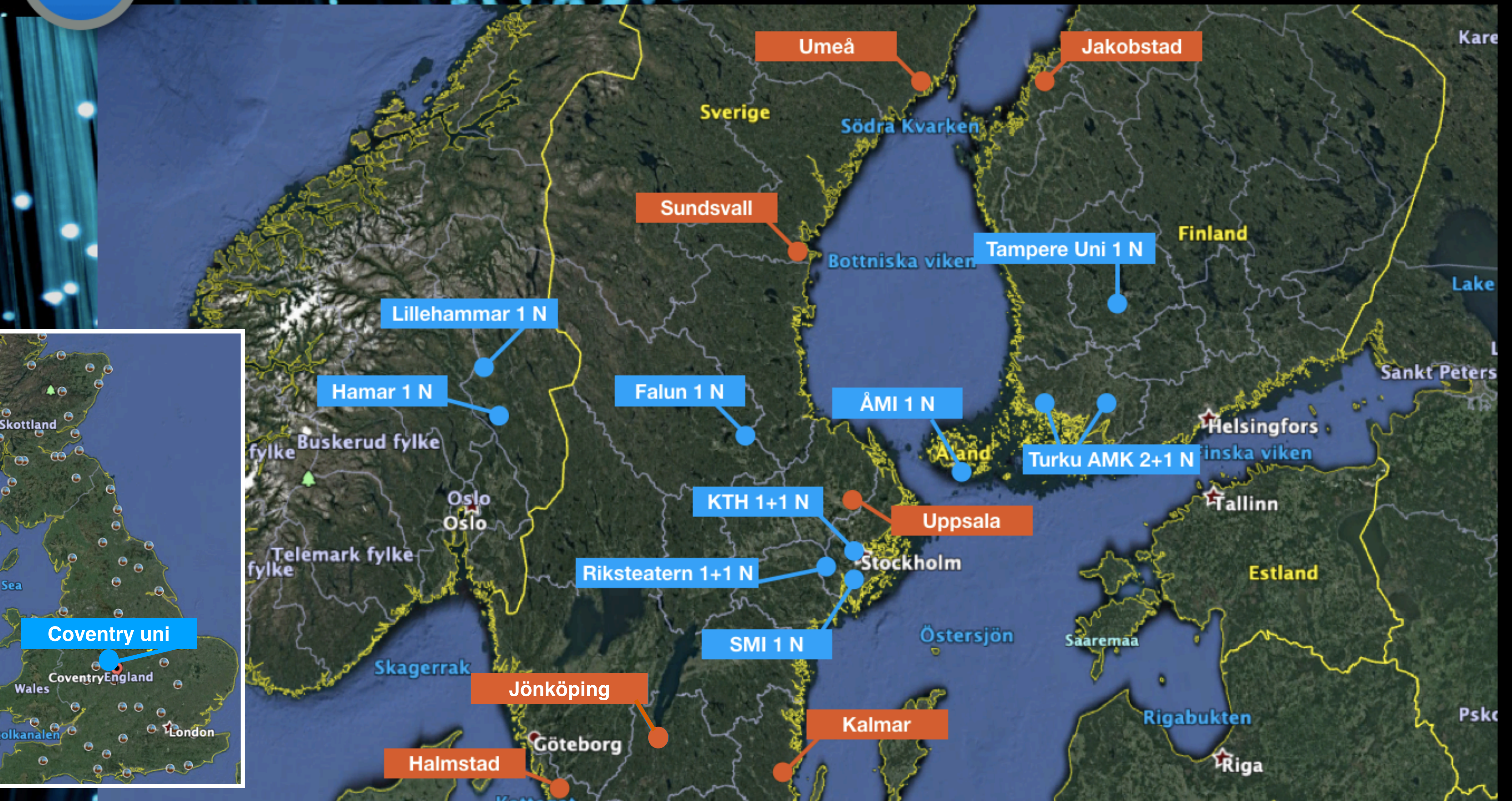
Stockholms
Musikpedagogiska
institut



Ian Plaudé SMI

NCDP

Present NCDP/Nimbra network in **blue**, pending in **orange**



Since the 90's when the optical fiber network was operational nationwide the capacity of the existing fibers have increased by 100 000x. That is more than doubling every year.

Actors who are interested in creating distributed presence at a low cost are now able to do so if they have access to the infrastructure or cooperate with telecom operators interested in regional development.

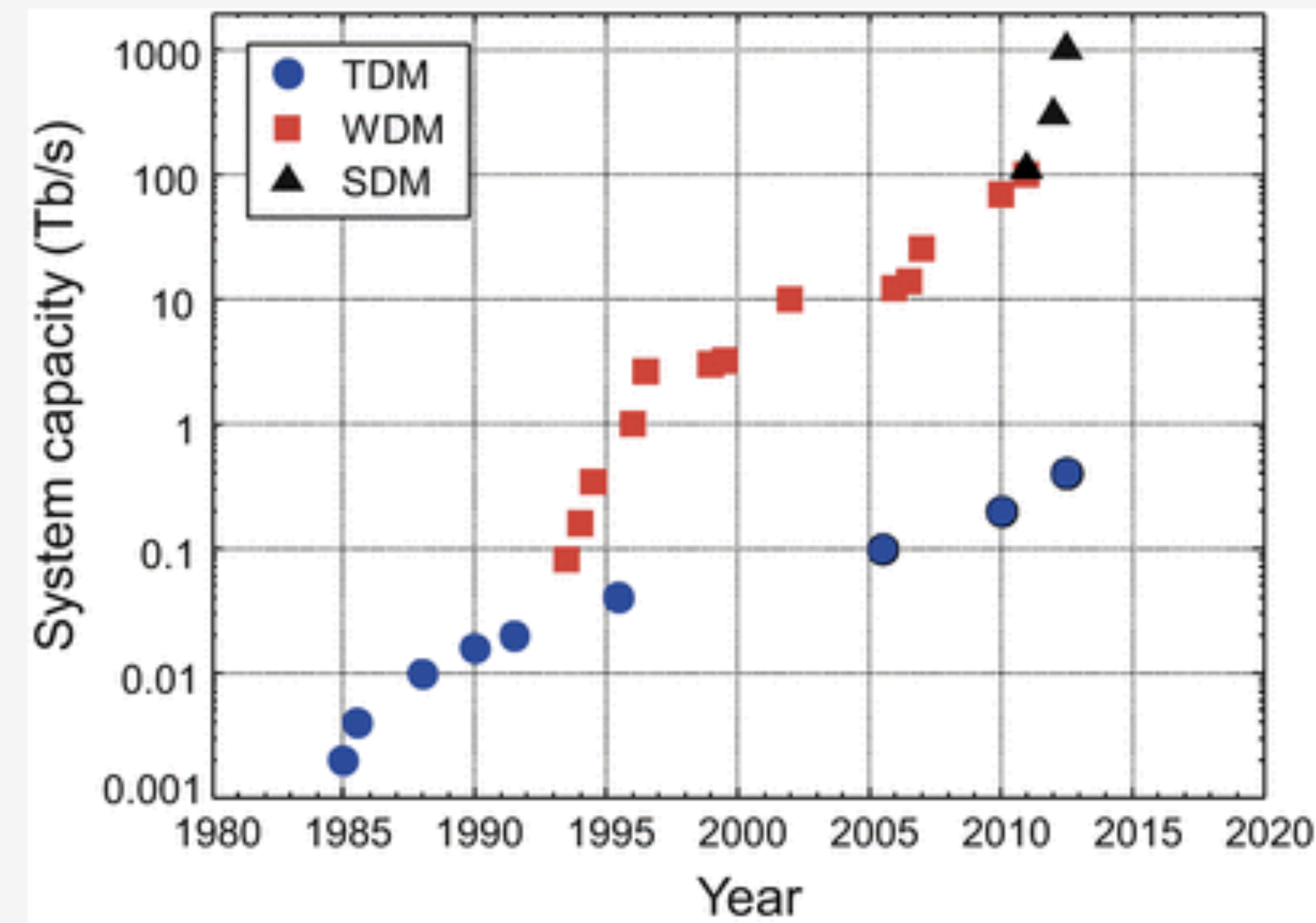


Fig. 8.15

Increase in the capacity of optical communication systems (on a logarithmic scale) realized from 1980 to 2015 using three different multiplexing techniques. Note the change in the slope around 1995 and 2011 when the WDM and SDM techniques were adopted (courtesy of R.J. Essiambre)

How can you tap into the technical development if you are in the field of performing arts, music education, regional development or digitalisation?

Regions and municipalities

- Contact NCDP and make a plan.
- Identify the actors and needs in the region (ca 15K€)
- Map accessibility in the various networks in the region (ca 15 K€)
- Develop an activity/time plan for implementation (ca 15 K€)
- Start with venues and organisations with regard to accessibility and potential. Step by step implementation as regional know-how develops.

Culture and music schools, cinemas, small local venues

- Become a member of NCDP
- Contact/inform/engage officials responsible for regional development, culture/ education and digitalisation.
- Acquire remote station (ca 10-15 K€). If needed apply for funding.

Estimated cost levels of connecting a region and endusers

	Regional node	Music education	Local music school
Nimbra 680 full spec.	30000		
10 Gps connection setup+ 490/month	7500	490/month	490/month
BMD router 20x20	7600		
10G switch	2000	400	
Dante system		2500	700
Mic/speakers		1500	1200
SDI Cameras - kit m 3 mini		600	600
Lighting		700	700
Display kit		2500	1500
Transmission		2400	2400
Assembly		5000	1000
Sum	47100	15600	8100
NCDP planning and installation	9420	3120	1620
Total	56520	18720	9720

"Last mile connection" costs not included since many citys have a fibre network of their own.
Costs in €.