

AEC - Pop & Jazz Platform 2023

Long distance live performing in ensembles - made possible

PhD. Habil. Associate professor Dan Spînu



"George Enescu" National University of Arts - Iași, ROMANIA

Remote rehearsals

isolation in pandemic times

On-line teaching via internet and readily available software

- Messenger, Skype, etc.
- On-line meeting software: Zoom, MS Teams, etc.

Courses based on lecture, auditions OK

Instrument lessons not great, but OK

Remote ensemble rehearsals, concerts impossible

Remote rehearsals

isolation in pandemic times

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LATENCY

Remote rehearsals

isolation in pandemic times

alternative to remote rehearsals/concerts:
Videoclips made by individual recordings, mixing, video editing



- NOT a real ensemble activity
- it completely lacks interactivity
- only songs with steady tempo can be approached

Remote rehearsals

~~isolation in pandemic times~~

Are the remote rehearsals still needed?

Remote rehearsals

~~isolation in pandemic times~~

Are the remote rehearsals still needed?

- **YES!** remote teaching programs
- **YES!** for students in isolated, remote areas
- **YES!** for students which cannot travel easily, like those with disabilities
- **YES!** for lowering the costs of music productions



The Multidisciplinary Research Institute in Art

Developing of technical solutions for
remote music education programs

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Developing of technical solutions for remote music education programs



Dan Spînu - project manager



Dan Arhire - guitar teacher



Teodor Amarandei - piano teacher

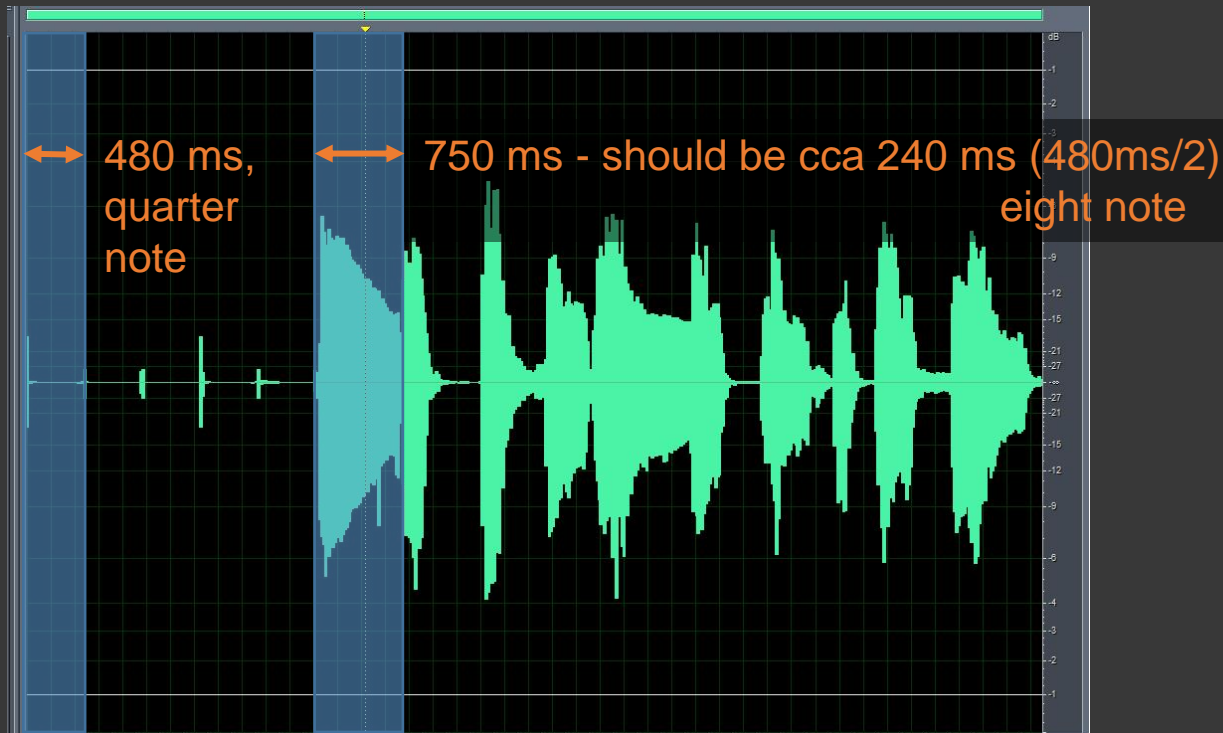


Developing of technical solutions for remote music education programs

Investigating the technical performance of on-line conference programs (Zoom) + integrated audio interfaces + high speed internet connection

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Latency ~ 500ms



Developing of technical solutions for remote music education programs

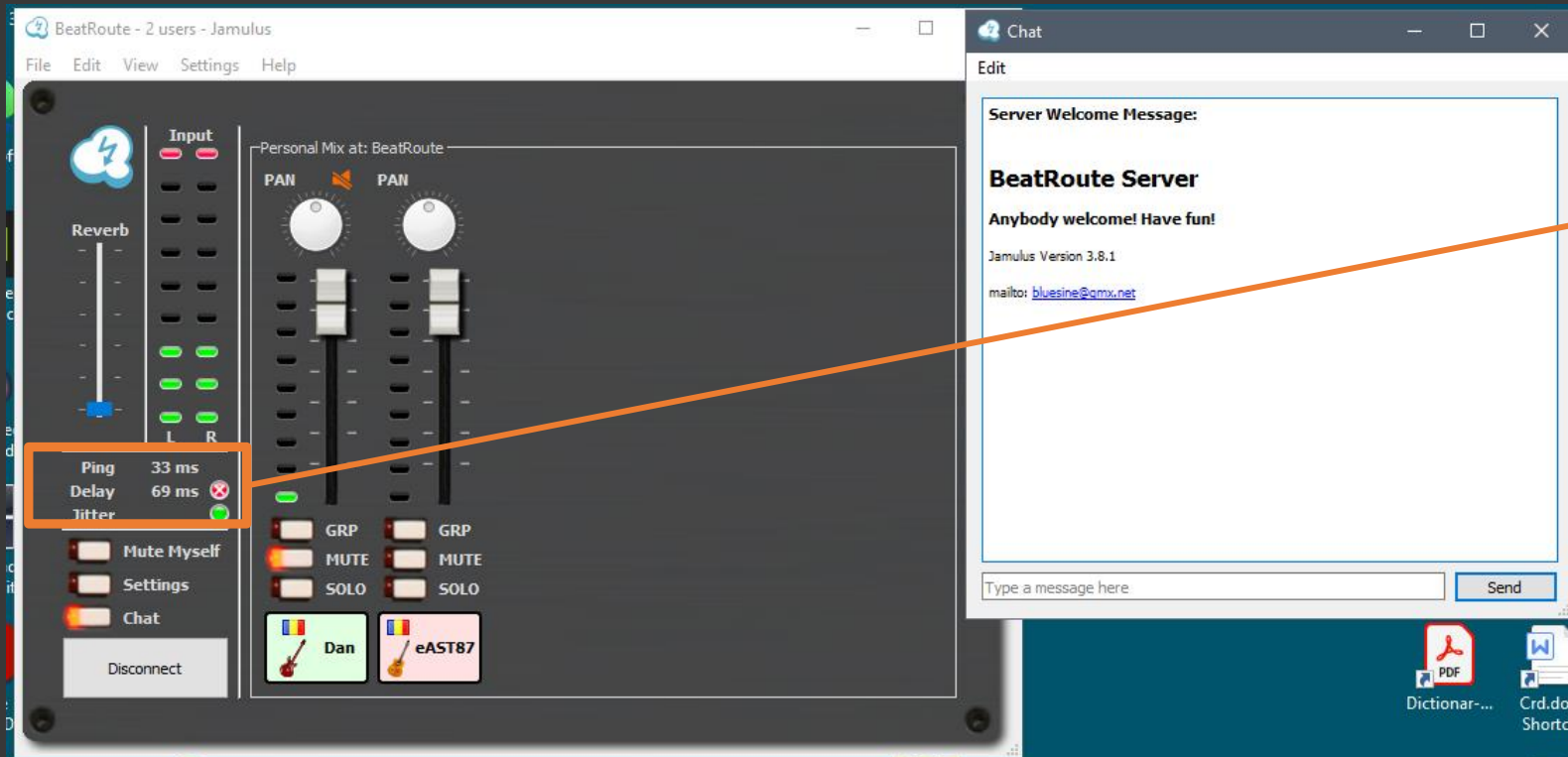
Investigating the technical performance of dedicated software (JAMULUS) + professional external audio interfaces + high speed internet connection

- **ASIO drivers**
- **Optimised software**

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The screenshot displays the Jamulus software interface. On the left, the 'Personal Mix at: BeatRoute' panel shows various audio controls. A small box highlights the network performance metrics: Ping 33 ms, Delay 69 ms (with a red 'X' icon), and Jitter (with a green checkmark icon). On the right, a 'Chat' window shows a 'Server Welcome Message' from the 'BeatRoute Server' with the text: 'Anybody welcome! Have fun!', 'Jamulus Version 3.8.1', and 'mailto: bluesine@gmx.net'. An orange arrow points from the 'Delay 69 ms' metric to the chat window.

Public server (Europe)

Latency = 69ms



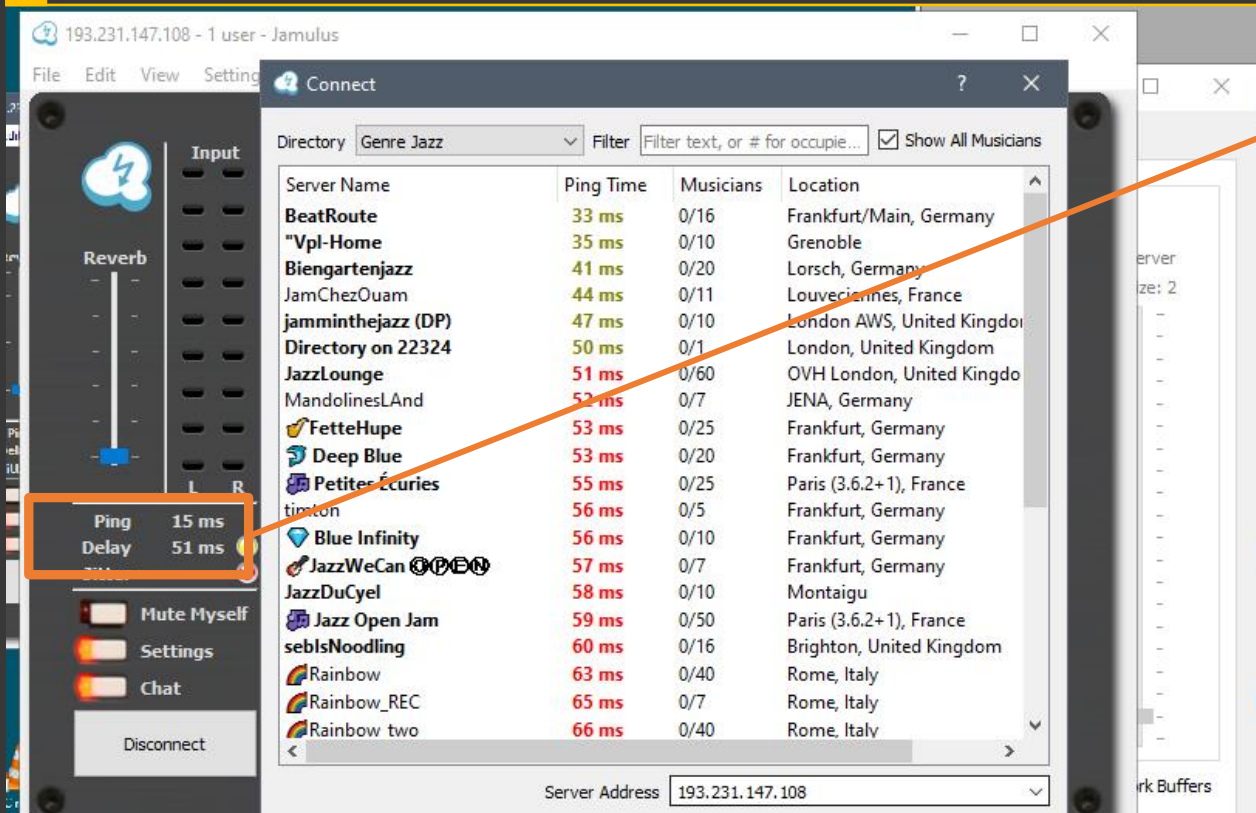
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Local private server

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193.231.147.108 - 1 user - Jamulus

Connect

Directory: Genre Jazz Filter: Filter text, or # for occupie... Show All Musicians

Server Name	Ping Time	Musicians	Location
BeatRoute	33 ms	0/16	Frankfurt/Main, Germany
"Vpl-Home	35 ms	0/10	Grenoble
Biengartenjazz	41 ms	0/20	Lorsch, Germany
JamChezOuam	44 ms	0/11	Louveciennes, France
jamminthejazz (DP)	47 ms	0/10	London AWS, United Kingdom
Directory on 22324	50 ms	0/1	London, United Kingdom
JazzLounge	51 ms	0/60	OVH London, United Kingdom
MandolinesLAnd	52 ms	0/7	JENA, Germany
FetteHupe	53 ms	0/25	Frankfurt, Germany
Deep Blue	53 ms	0/20	Frankfurt, Germany
Petite Écuries	55 ms	0/25	Paris (3.6.2+1), France
tinaton	56 ms	0/5	Frankfurt, Germany
Blue Infinity	56 ms	0/10	Frankfurt, Germany
JazzWeCan OPEN	57 ms	0/7	Frankfurt, Germany
JazzDuCyel	58 ms	0/10	Montaigu
Jazz Open Jam	59 ms	0/50	Paris (3.6.2+1), France
seblsNoodling	60 ms	0/16	Brighton, United Kingdom
Rainbow	63 ms	0/40	Rome, Italy
Rainbow_REC	65 ms	0/7	Rome, Italy
Rainbow two	66 ms	0/40	Rome, Italy

Ping 15 ms
Delay 51 ms

Mute Myself
Settings
Chat
Disconnect

Server Address 193.231.147.108

Local private server
Latency = 51ms

Guitar + bass

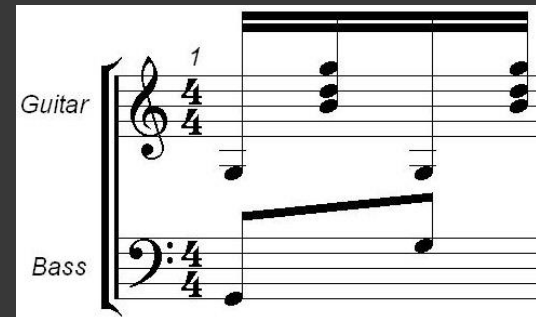
eights, medium tempo



Guitar + bass + piano



sixteenth, tempo 90-220 BPM



Guitar

Bass





Developing of technical solutions for remote music education programs

Investigating the technical performance of dedicated software + professional external audio interfaces + **dedicated data connection**

Remote rehearsals and two-team synchronous remote concert

- **JAMULUS**
- **ASIO drivers**
- **Dedicated data connection - RADIOCOM** **National Society of Radio Communications**
- **Partnership with "Tudor Jarda" Music High School - Bistrița**



Developing of technical solutions for remote music education programs

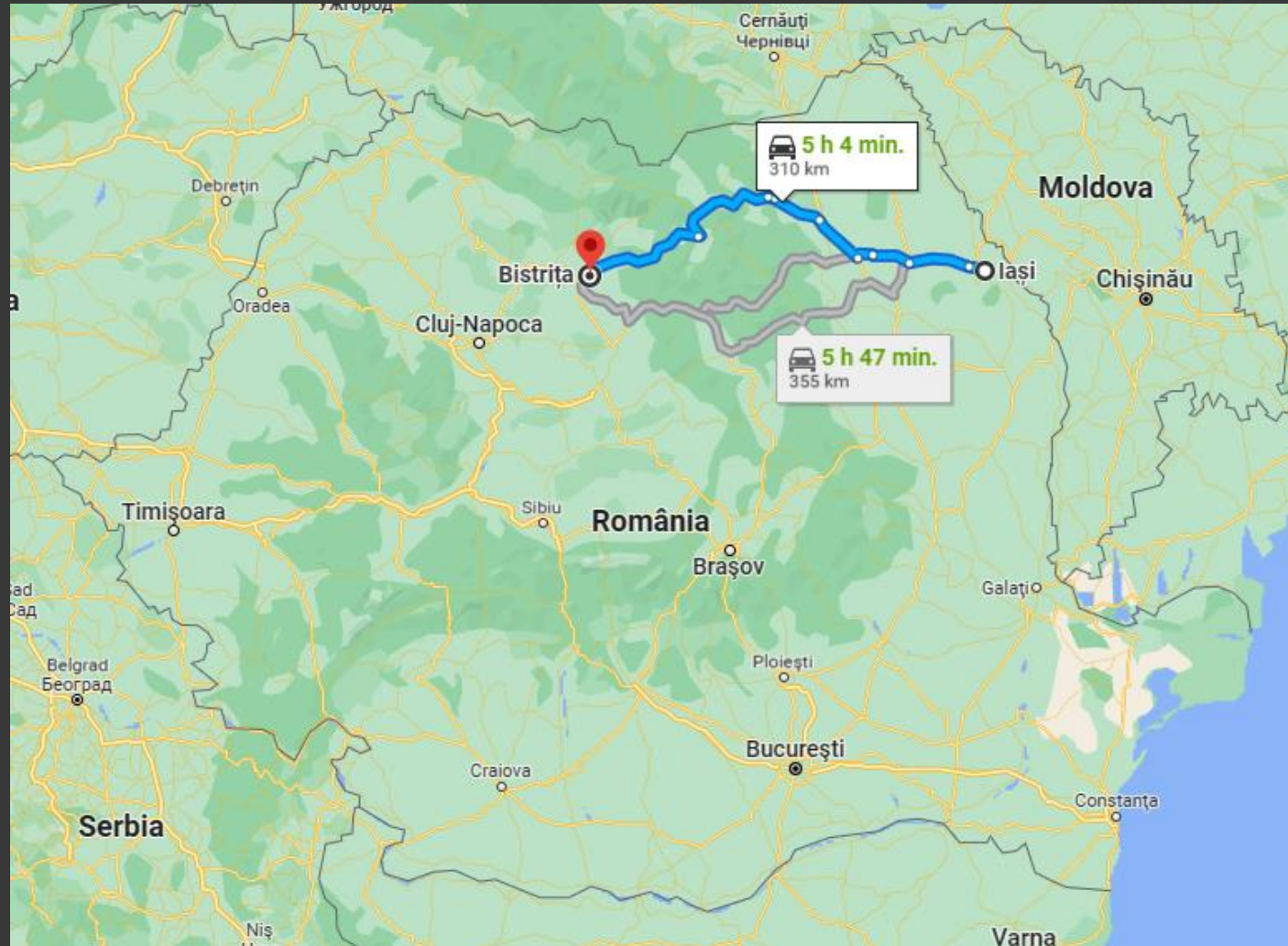
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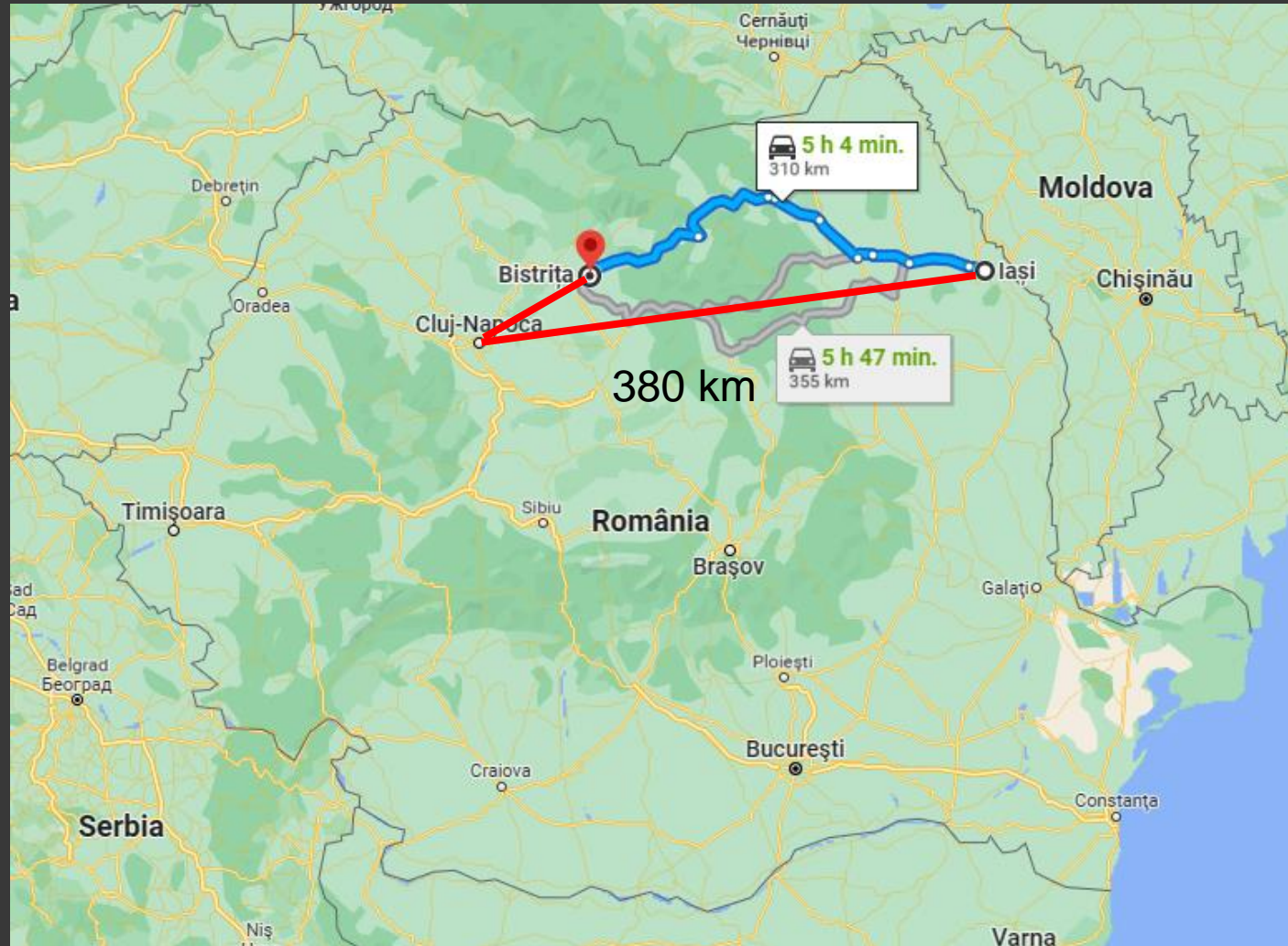
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Latency of ~ 18 ms

Developing of technical solutions for remote music education programs



Developing of technical solutions for remote music education programs



Developing of technical solutions for remote music education programs

Iași - National University of Arts

Bistrița - Music High School



Developing of technical solutions for remote music education programs

P. Hindemith
Sonata for flute and piano
flute + piano



Take Five
clarinet + guitar
guitar



Moanin'
flute + trombone
combo



Black Hole Sun
singer + bass
piano drumset



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THANK YOU!

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