

transLectures

Transcription and Translation of Video Lectures



FP7-ICT-2011-7 - Language technologies (STREP)

Duration: 36 months (1 Nov 2011 – 31 Oct 2014)

No	Name	Short	Country
1	UNIVERSITAT POLITECNICA DE VALENCIA	UPVLC	Spain
2	XEROX SAS	XEROX	France
3	INSTITUT JOZEF STEFAN	JSI	Slovenia
3+	KNOWLEDGE FOR ALL FOUNDATION	K4A	UK
4	RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN	RWTH	Germany
5	EUROPEAN MEDIA LABORATORY GMBH	EML	Germany
6	Deluxe Digital Studios Ltd	DDS	UK

Motivation

- Large on-line repositories of video lectures are being established: VideoLectures.NET, poliMedia, OCW and Opencast Matterhorn-based repositories, etc.
- Video lectures are neither transcribed nor translated due the lack of cost-effective tools.
- Transcriptions and translations are needed to make them accessible to speakers of different languages and people with disabilities. They would also facilitate further search and analysis functions.
- Starting hypothesis: current ASR and MT techniques are not far from achieving acceptable results in educational repositories.

Motivation: applications of transcription

- Accessibility (hearing impairment) or quiet environments
- Translation to any other languages
- Searchability
- Recommendation
- Summarisation
- Video segmentation
- Discovery of content relations

Goal and technology challenges

Goal:

To develop innovative, cost-effective solutions to produce accurate transcriptions and translations in VideoLectures.NET, with generality across other Matterhorn-related repositories.

Technology challenges:

- Improvement of transcription and translation quality by *massive adaptation*.
- Improvement of transcription and translation quality by *intelligent interaction*.
- *Integration into Matterhorn* to enable real-life evaluation.

Outline of the talk

- Demo videos: project overview, intelligent interaction and Matterhorn integration
- Transcriptions and translations at the pilots
- Massive adaptation
- Intelligent interaction with users
- Integration and evaluation
- Try our tools and transcribe your videos

Demo videos

- Project overview

<https://www.translectures.eu/project-summary>

- Intelligent interaction with users

<https://www.translectures.eu/web/progress>

- Matterhorn integration

<https://www.translectures.eu/web/progress>

Transcriptions and translations at the pilots

	Language	Nb. of lectures	Nb. of hours
VideoLectures.NET	English	9148	5900
	Slovenian	741	490
	Total	9889	6390
poliMedia (live)	Spanish	7554	996
	English	420	62
	Catalan	91	11
	Total	8065	1069

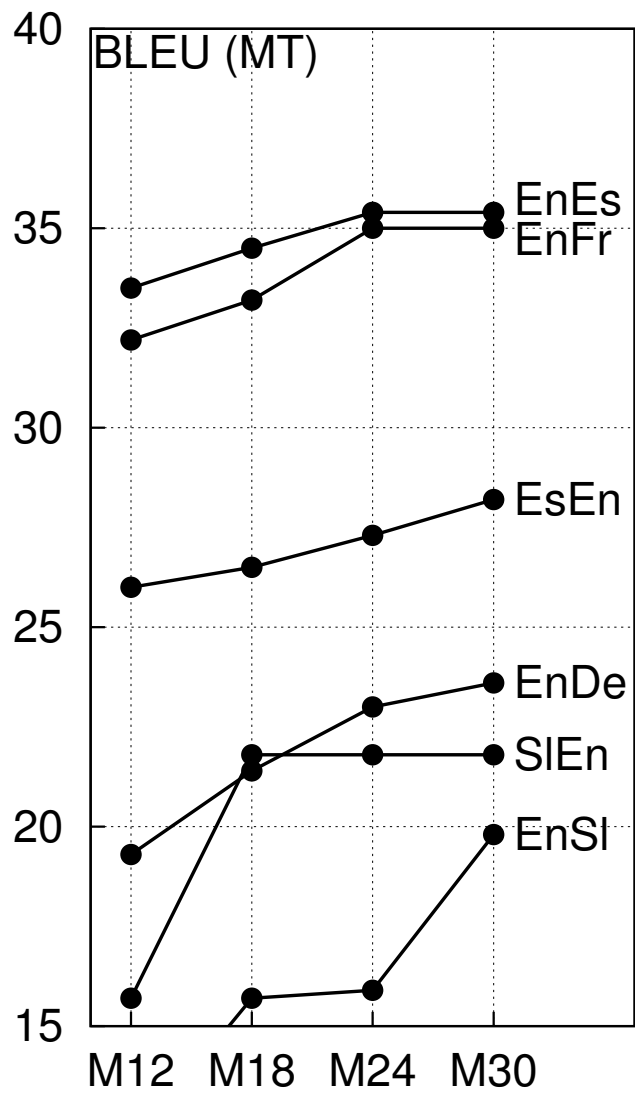
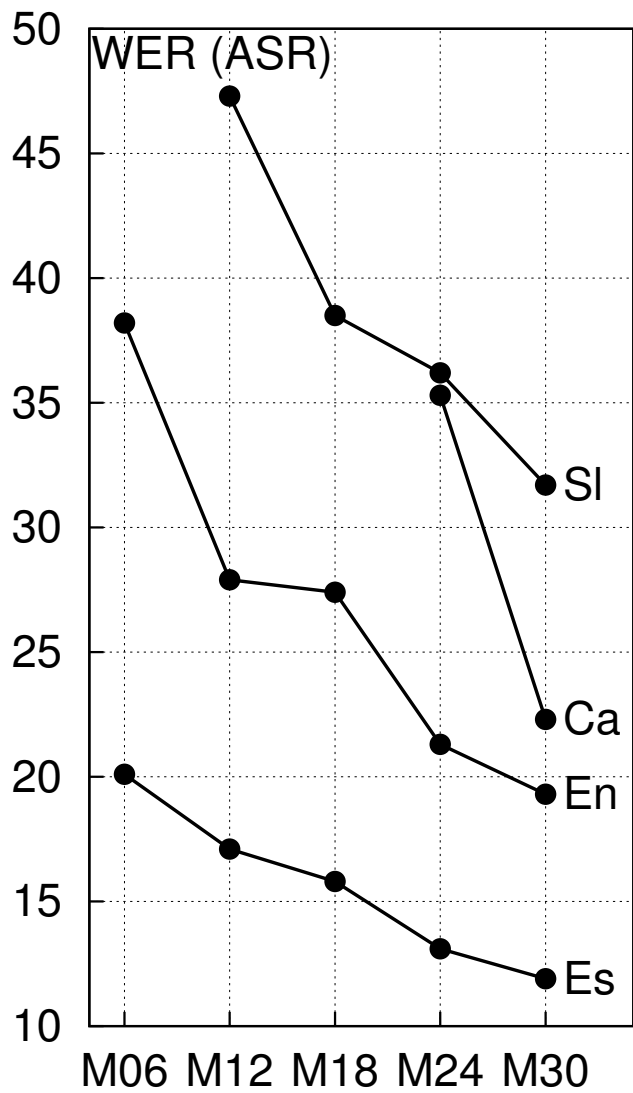
VideoLectures.NET: EnEs, EnFr, EnDe, EnSl, SlEn

poliMedia: EsEn

Massive adaptation

- Massive adaptation of acoustic models
 - Adaptation by neural networks
 - Adaptation by CMLLR and MLLR
- Massive adaptation of language models
 - Adaptation by interpolation
 - Adaptation by lecture slides
 - Adaptation by lecture-dependent in-domain document retrieval
- Massive adaptation of translation models
 - Adaptation by data selection

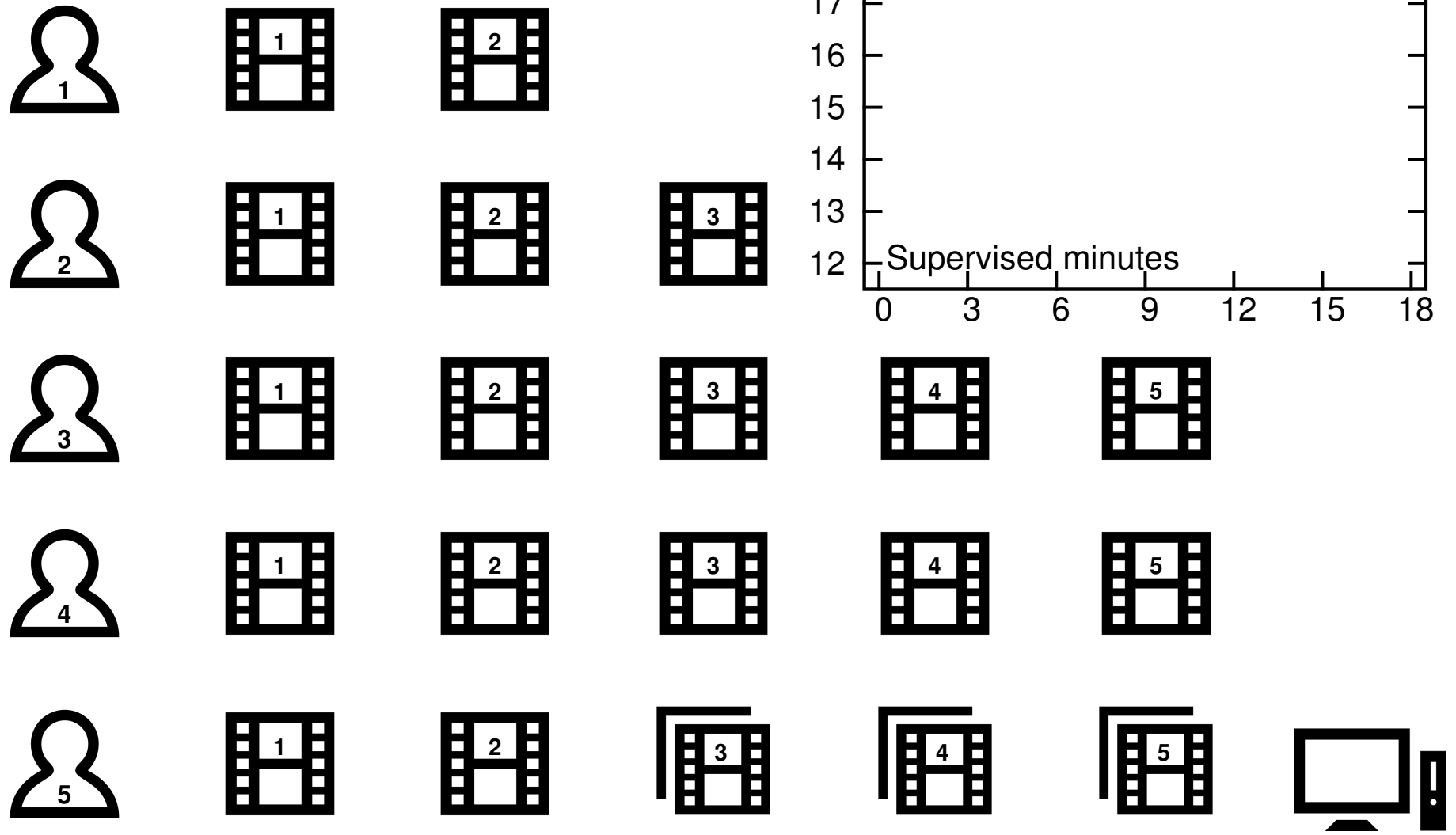
More on massive adaptation in Muhammed's talk



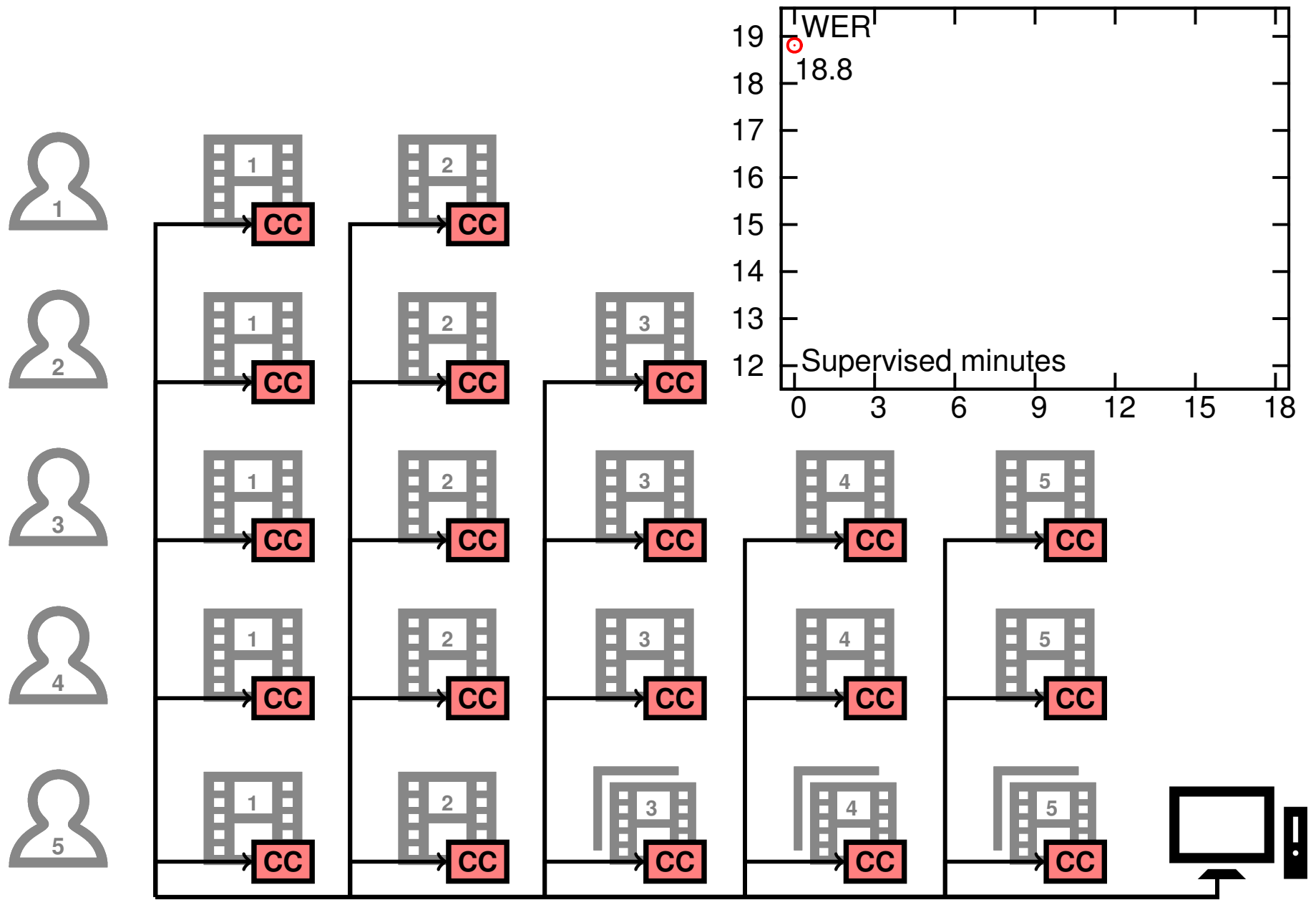
Intelligent interaction with users

- Fast constrained search
- Intelligent interaction for transcription
 - Confidence estimation
 - User interaction units
- Intelligent interaction for translation
 - Intelligent interaction at sentence level
 - Intelligent interaction at word level
- Incremental training for translation

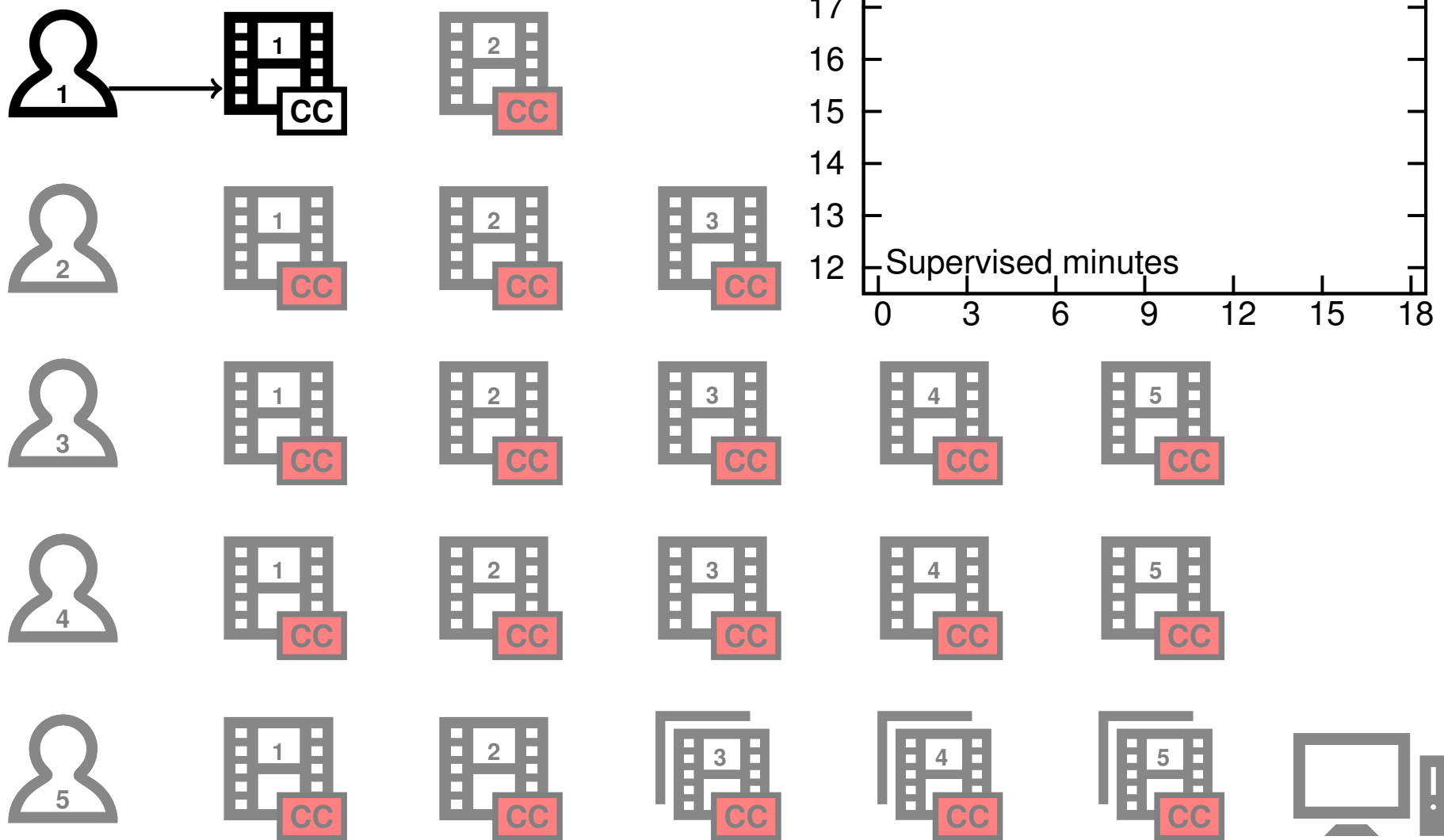
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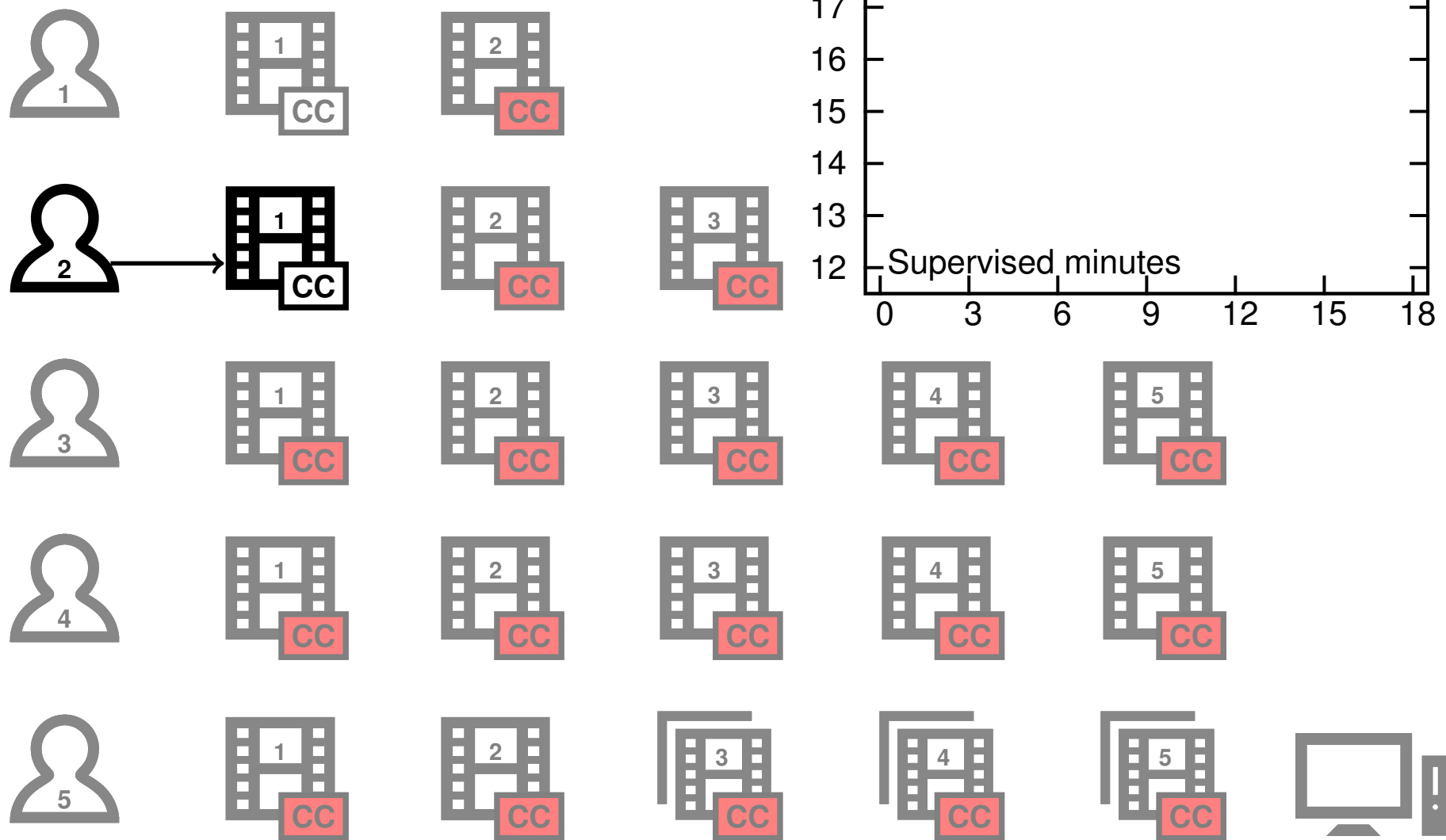
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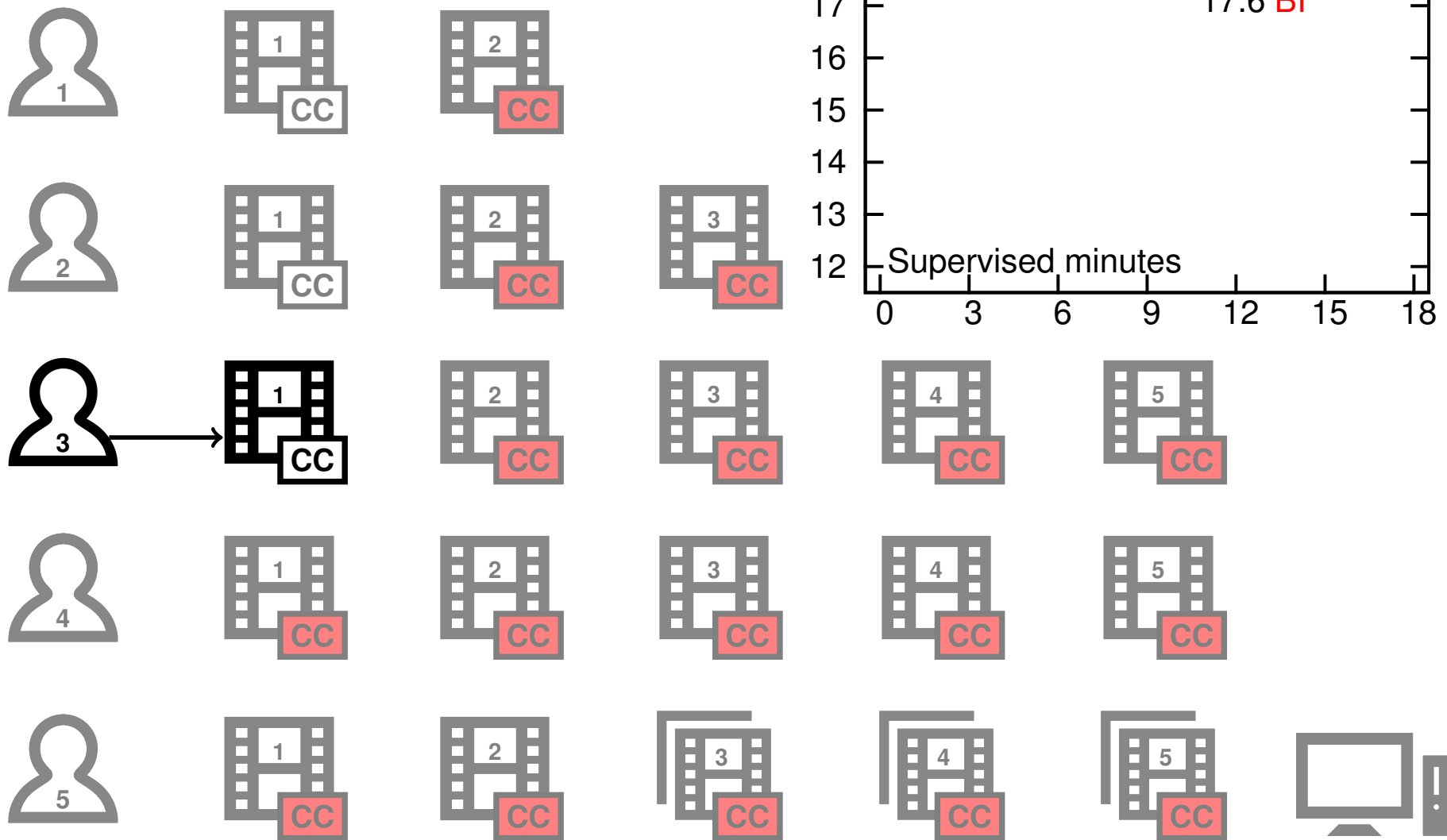
Transcription of 23 videos (3h) with **batch interaction**



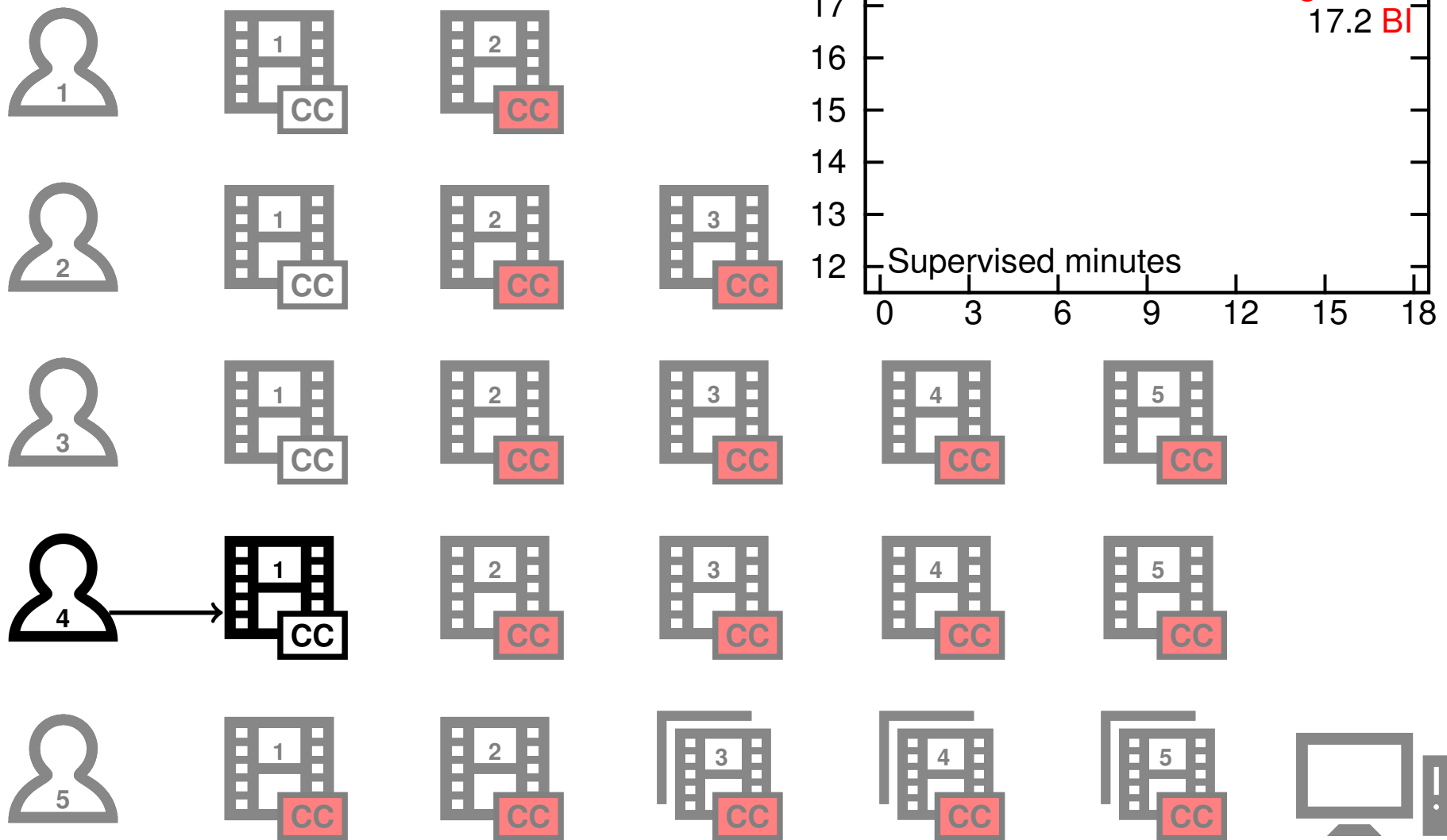
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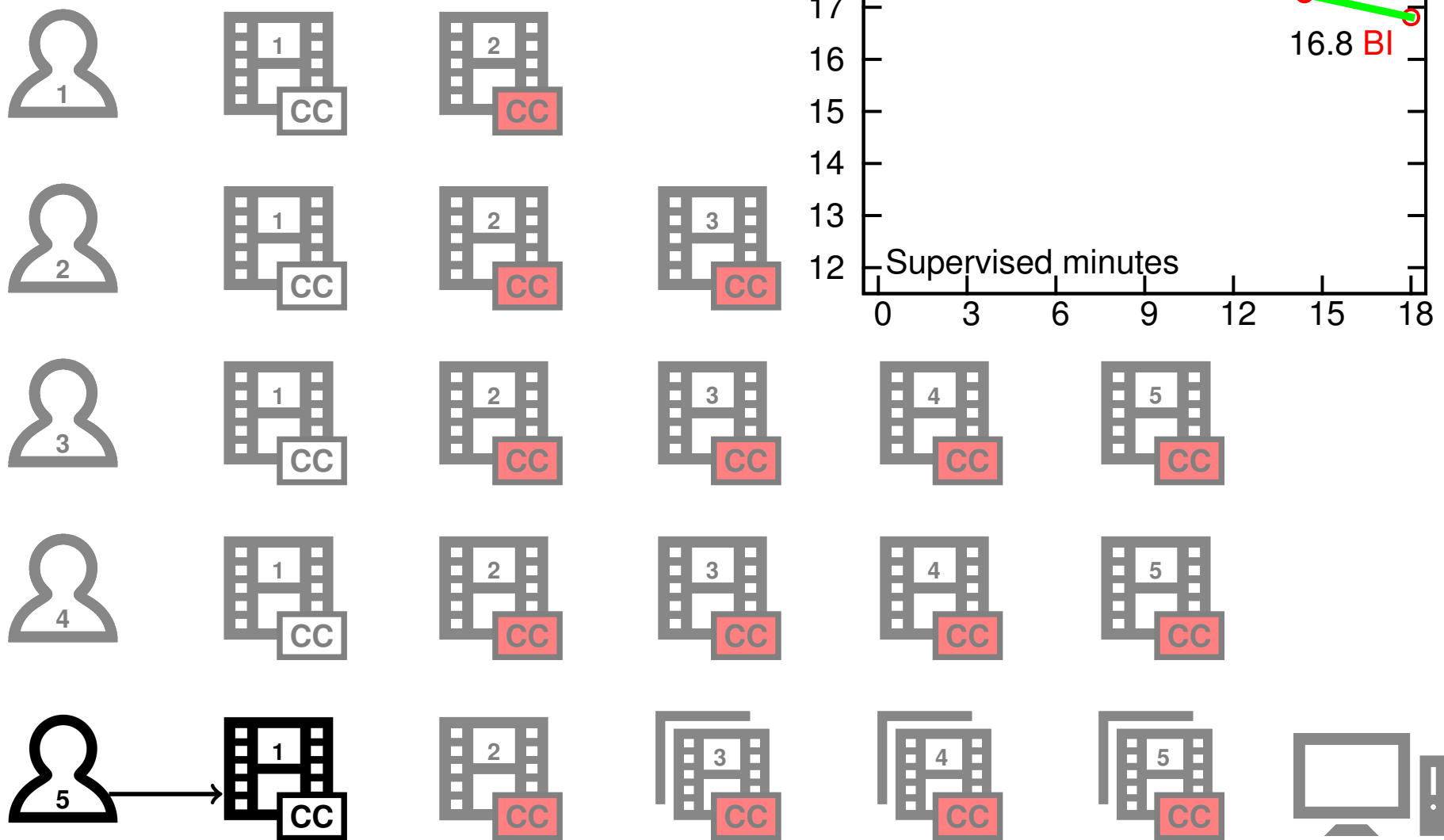
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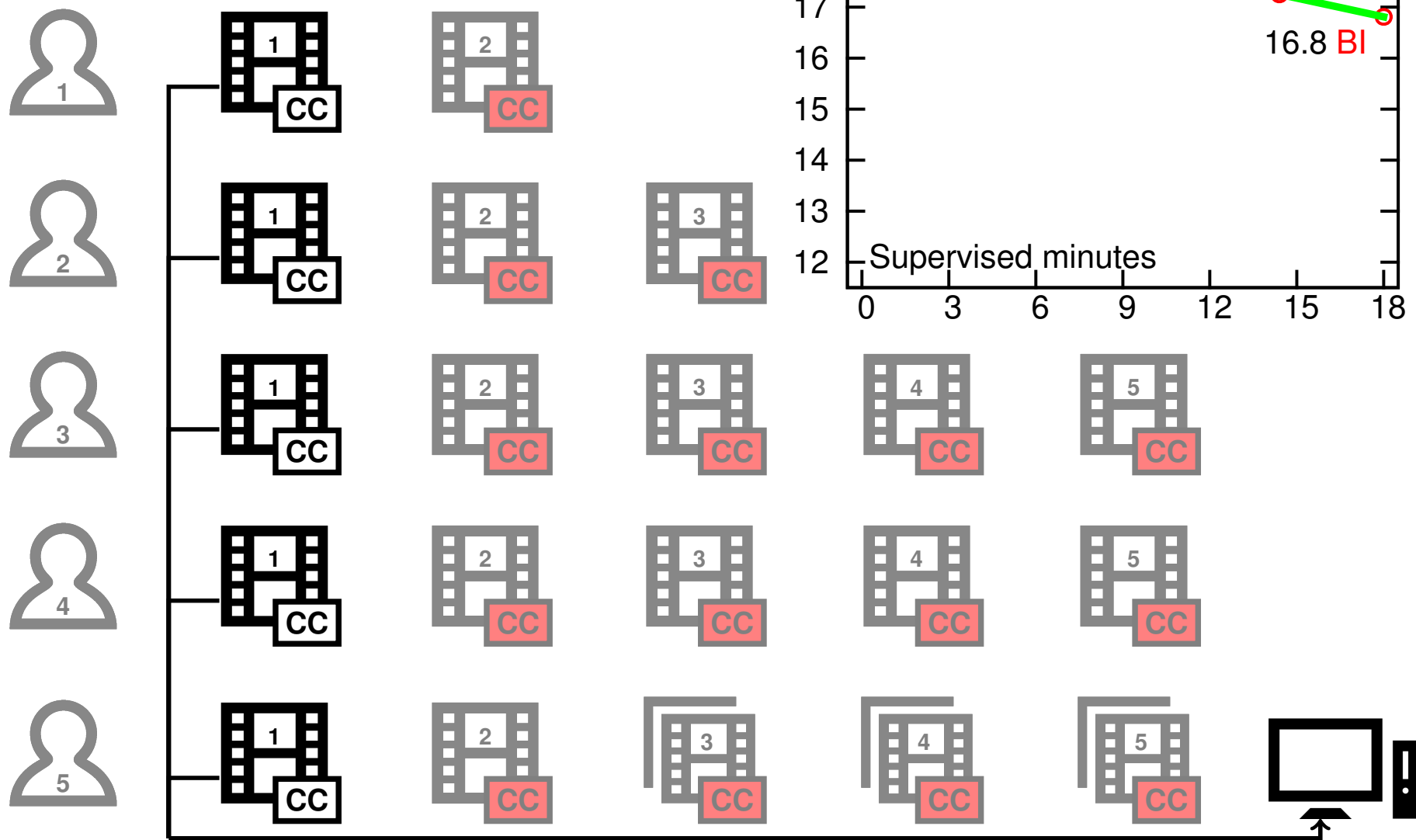
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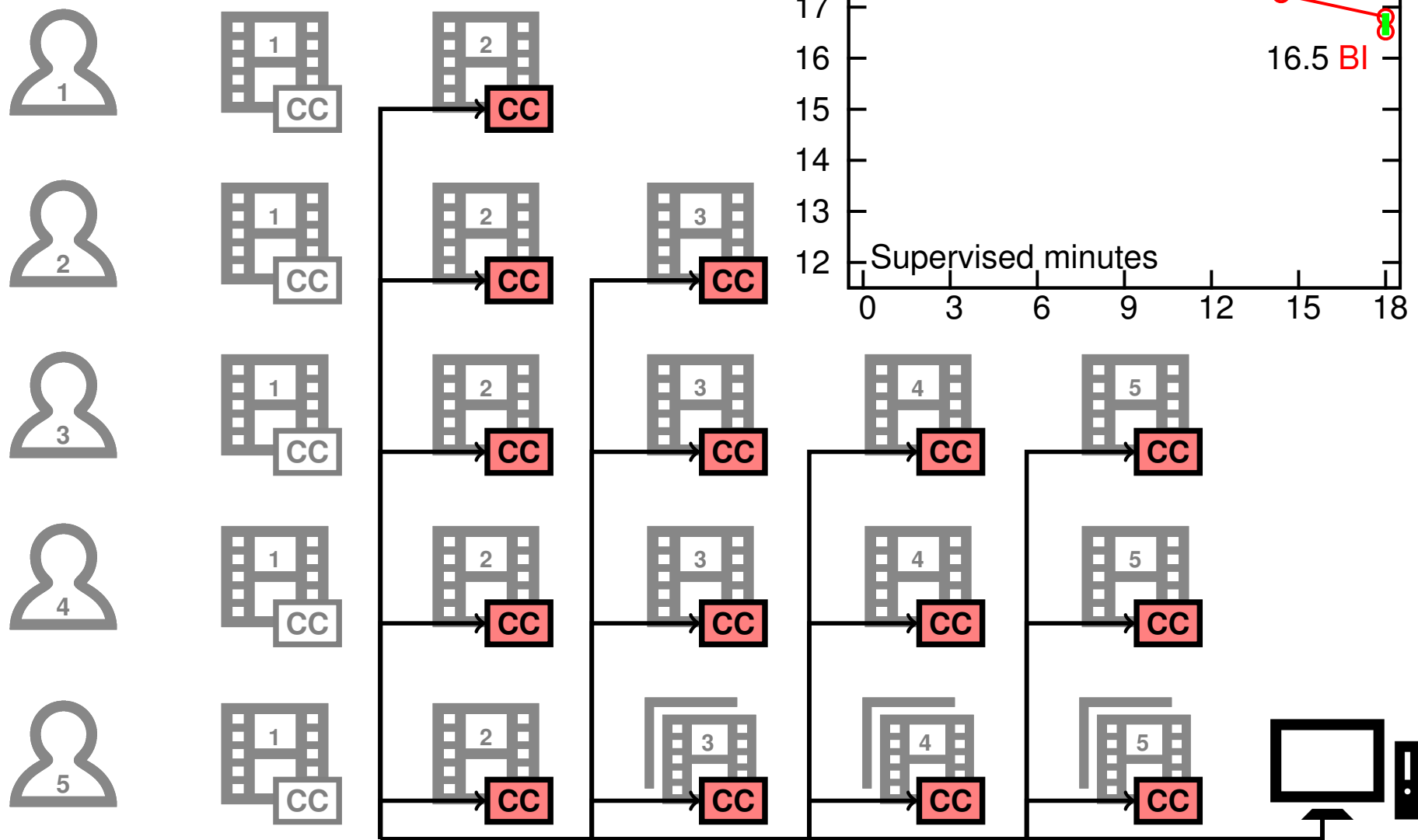
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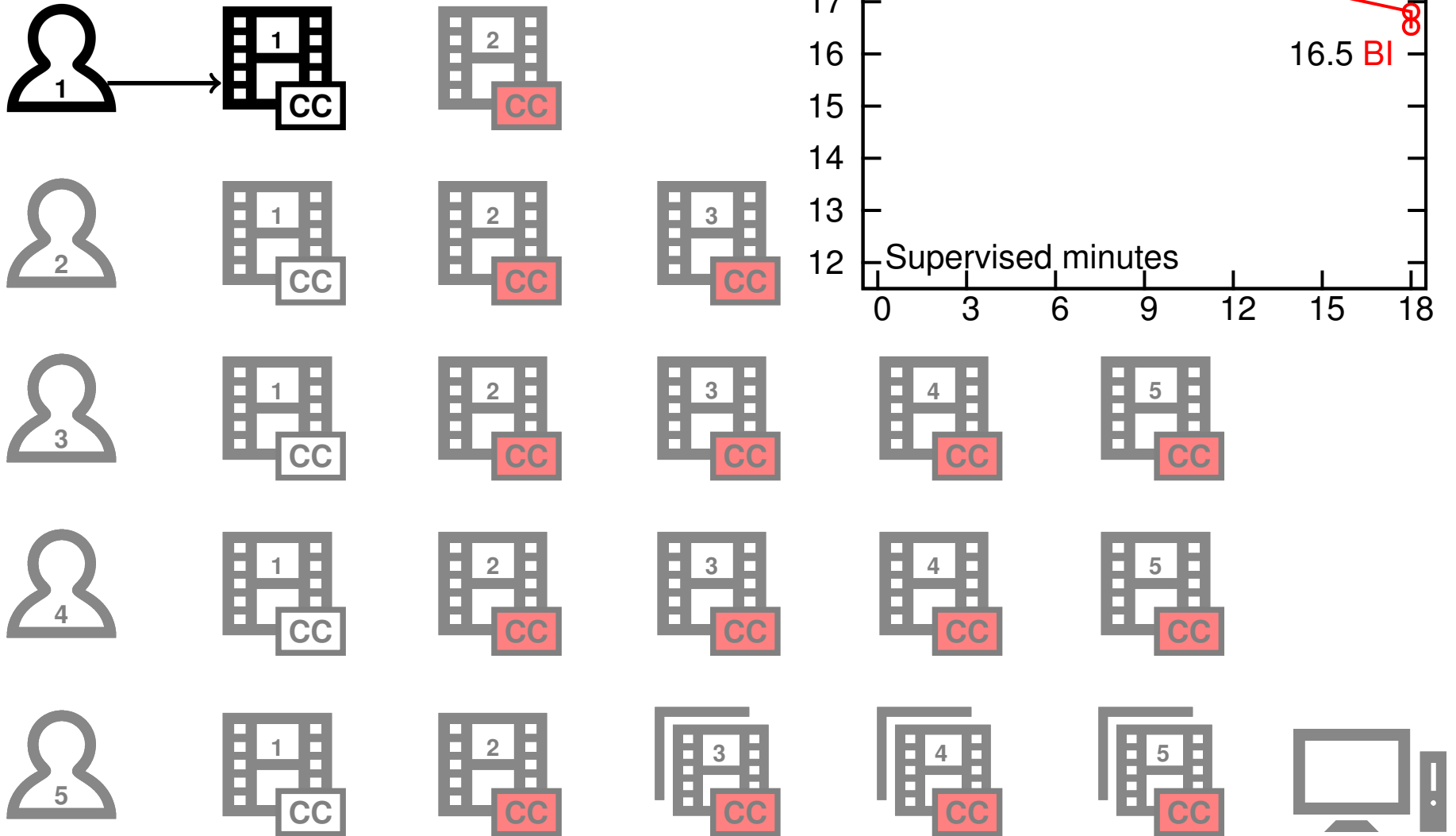
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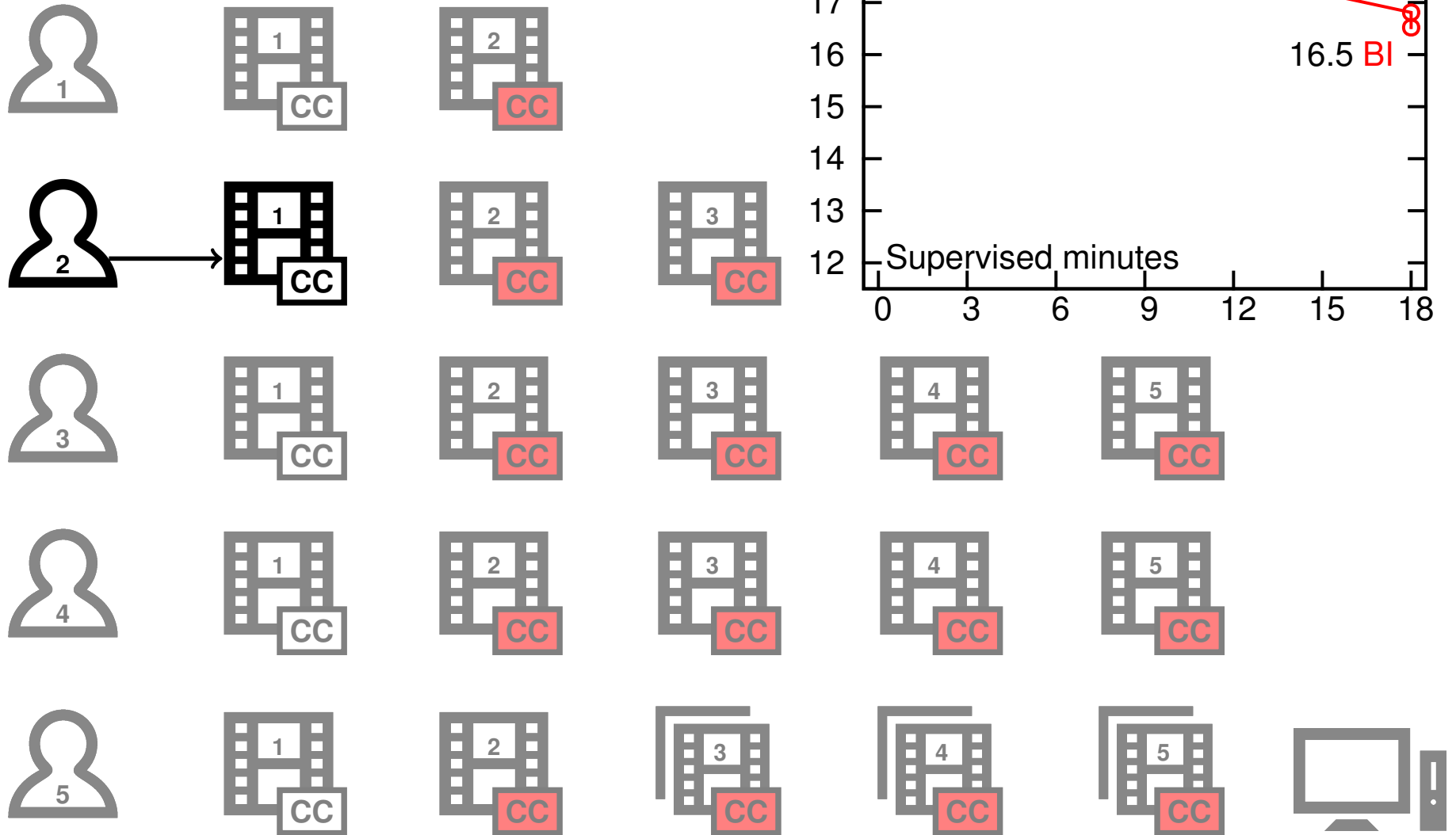
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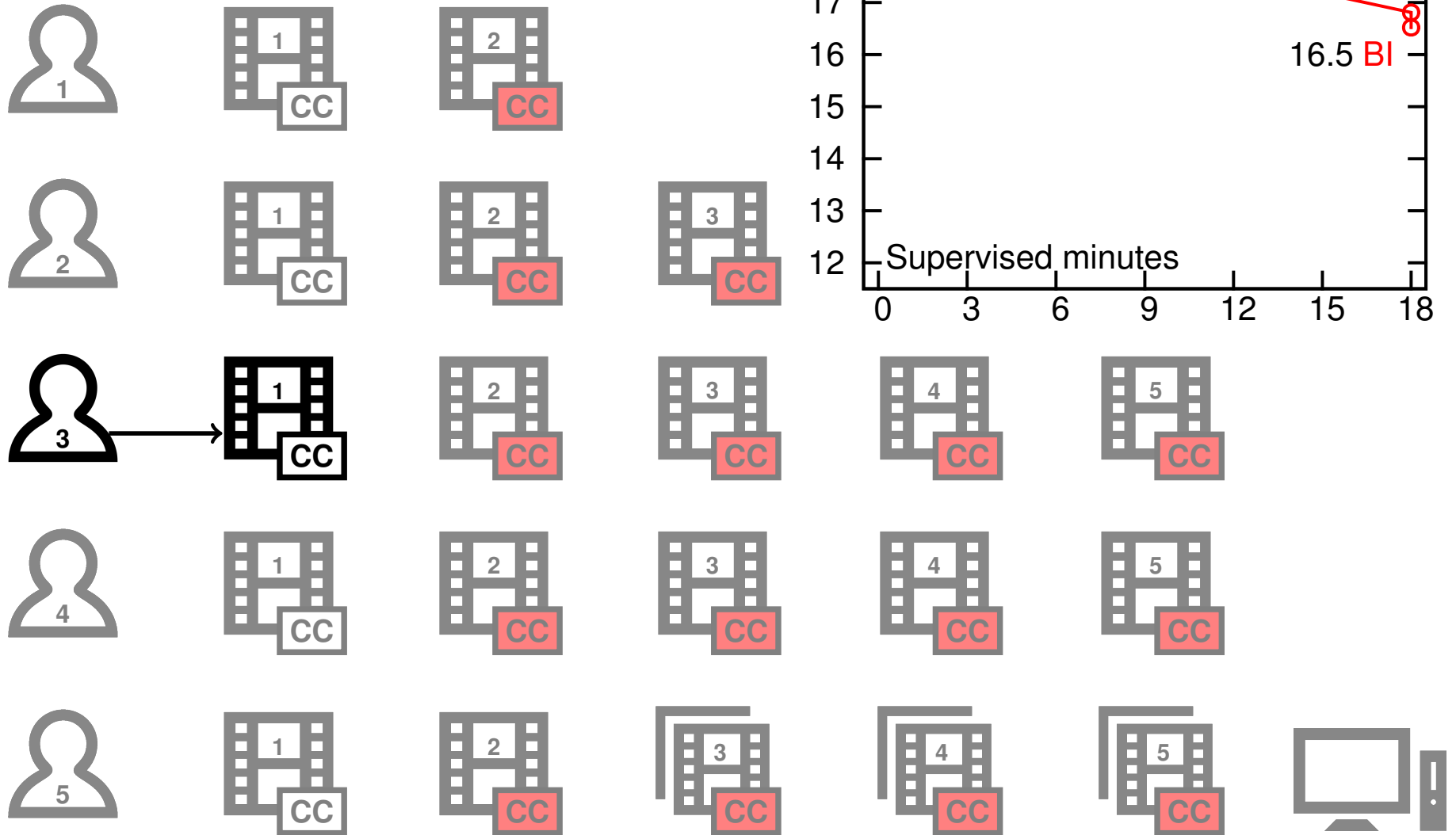
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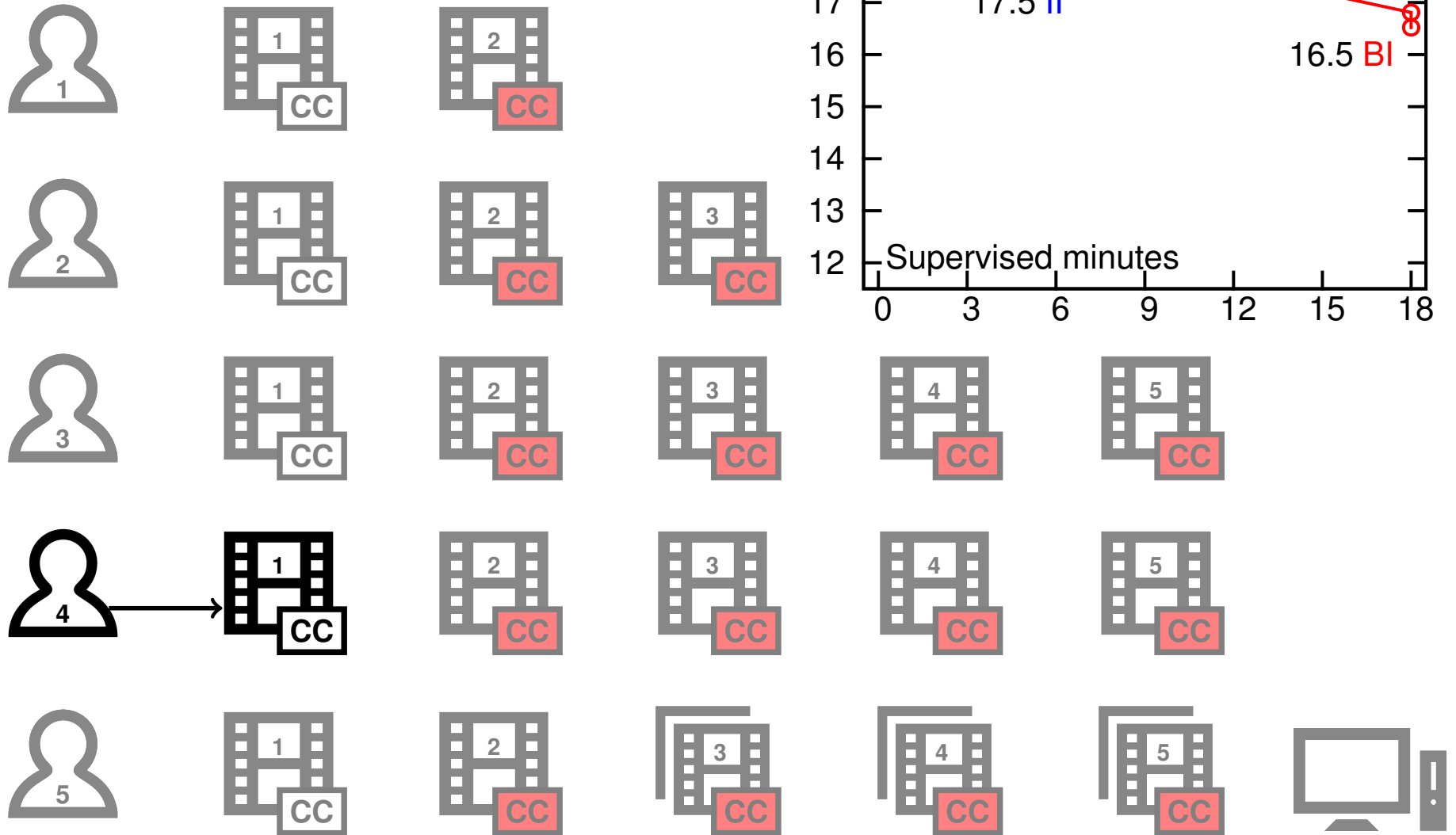
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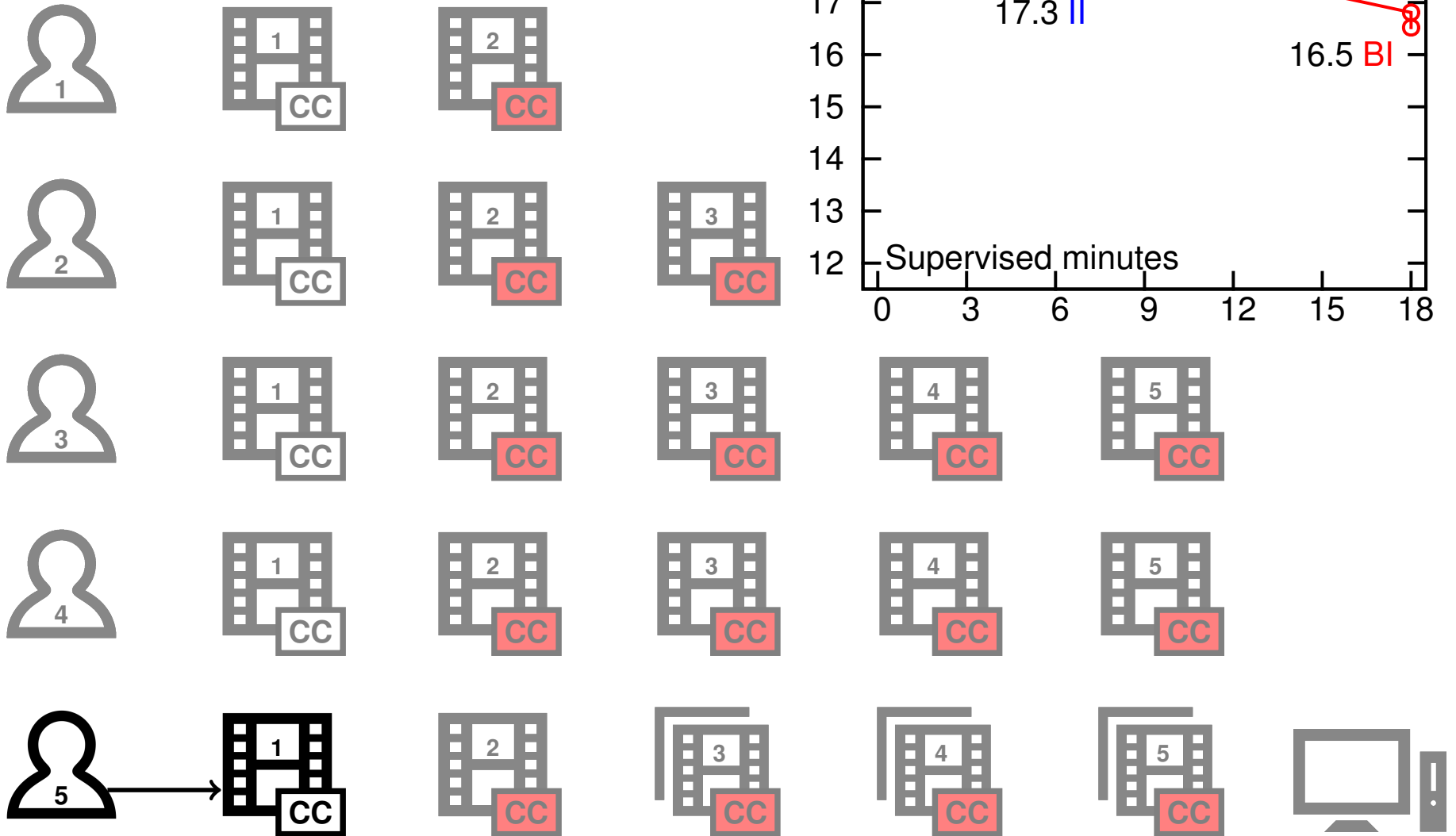
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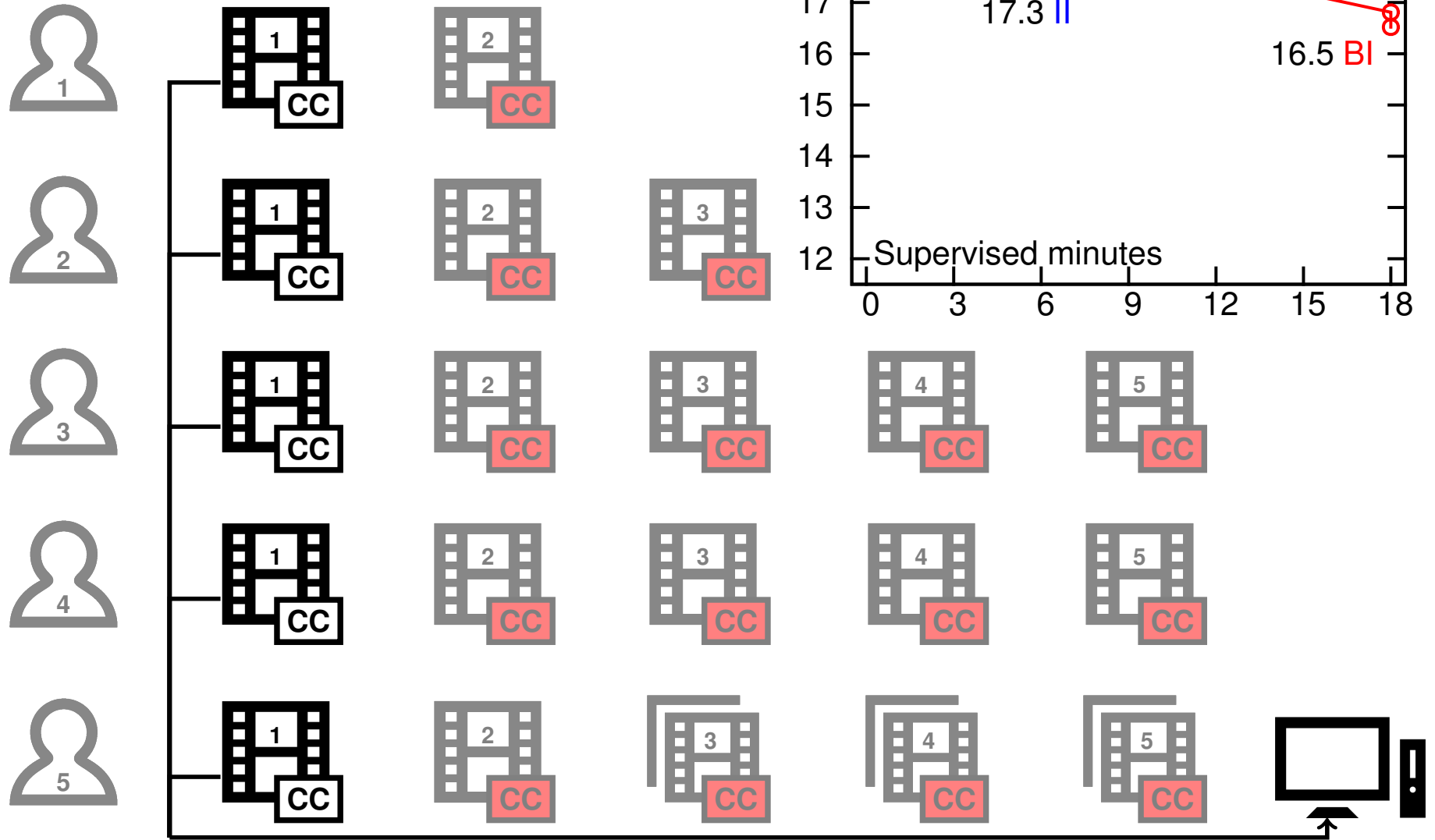
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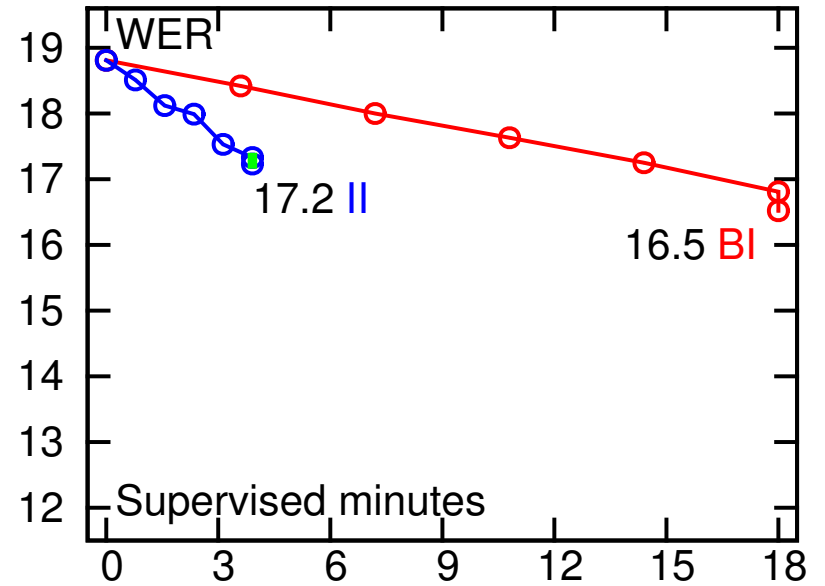
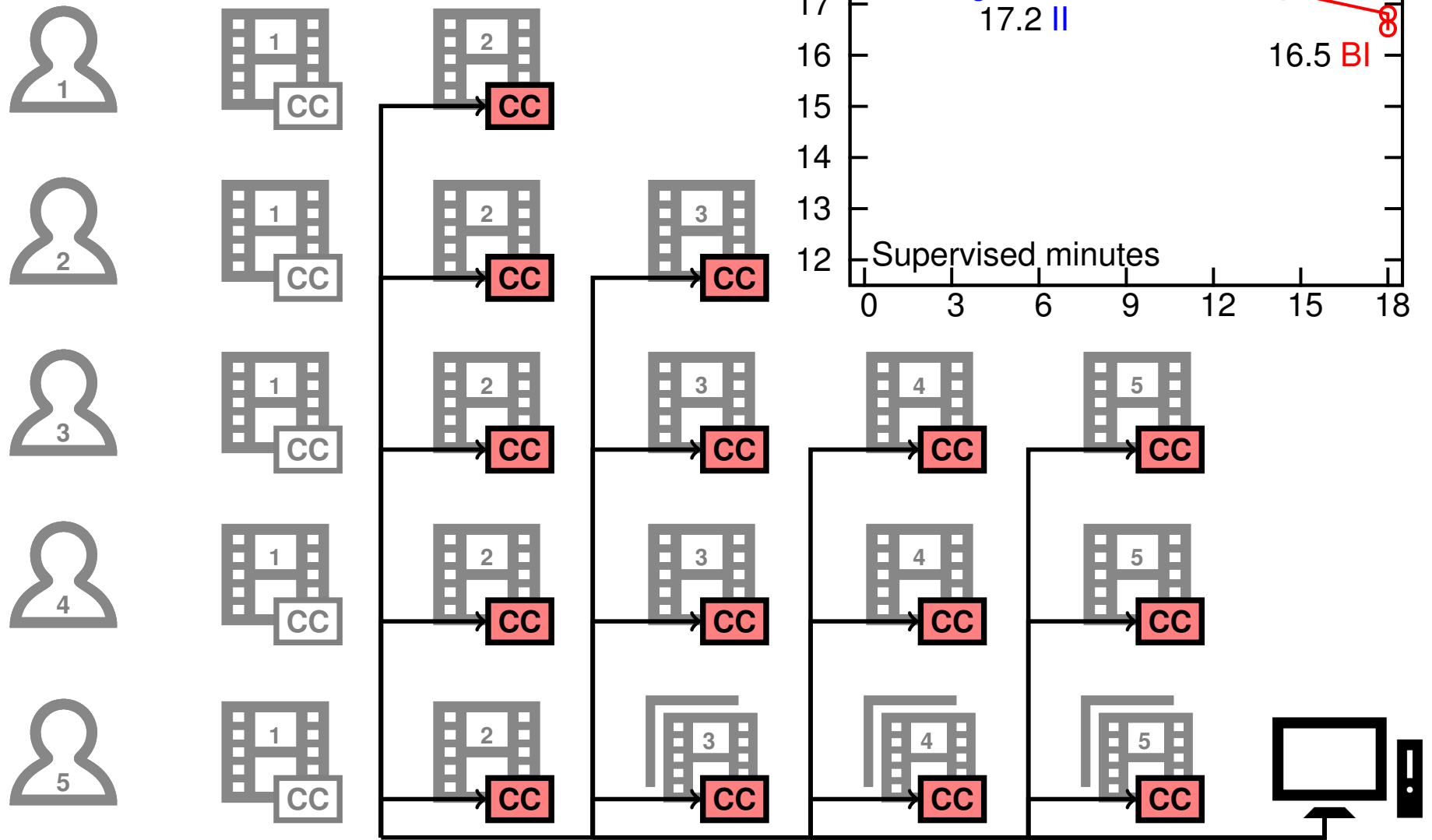
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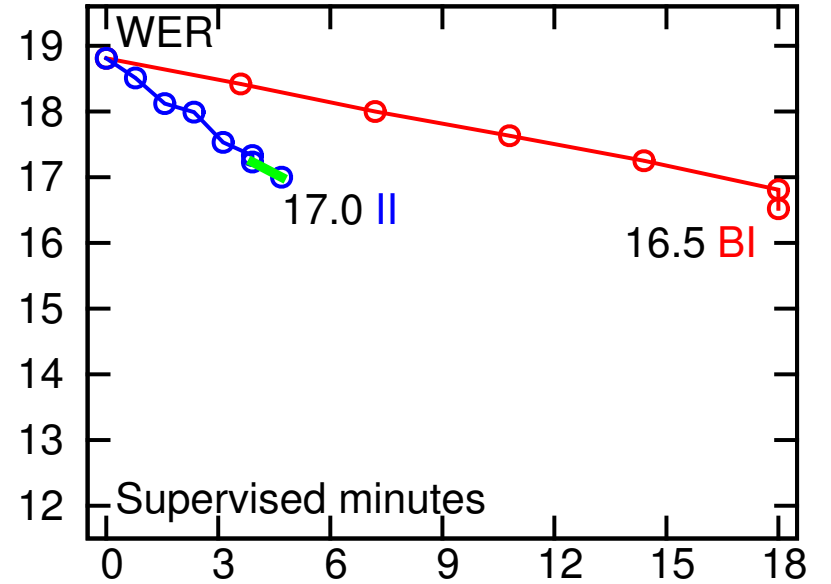
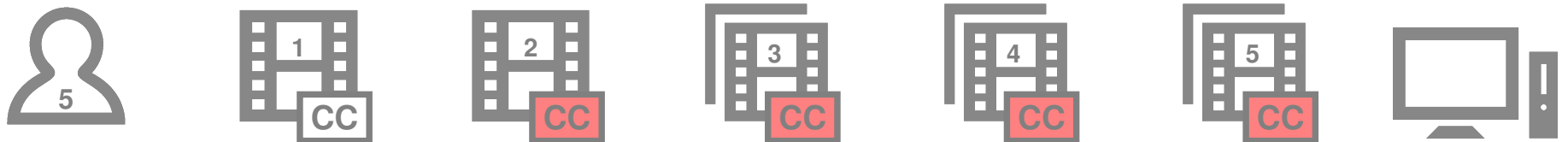
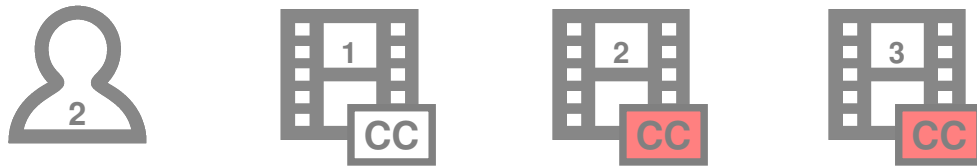
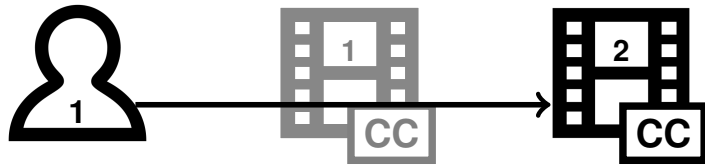
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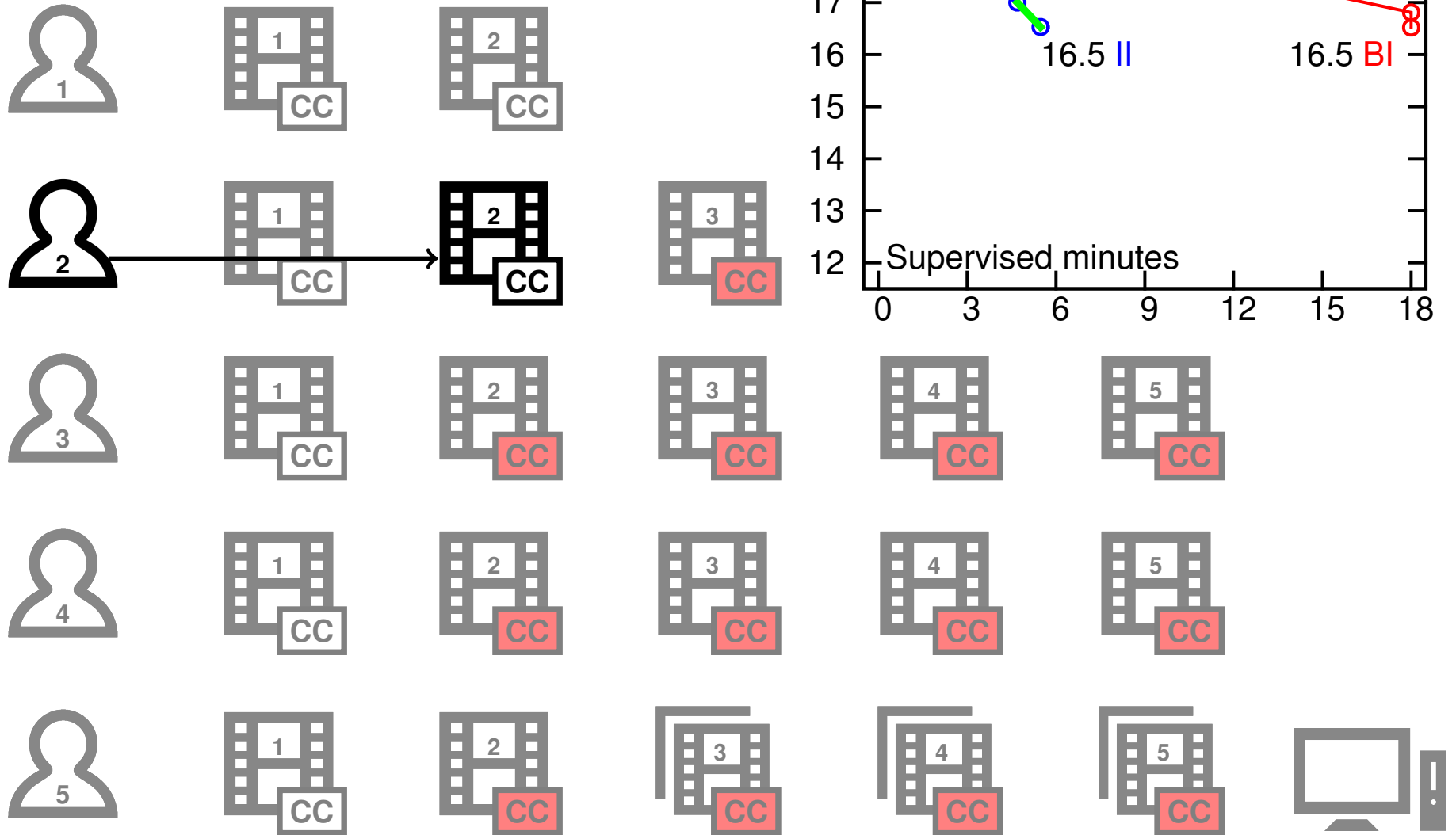
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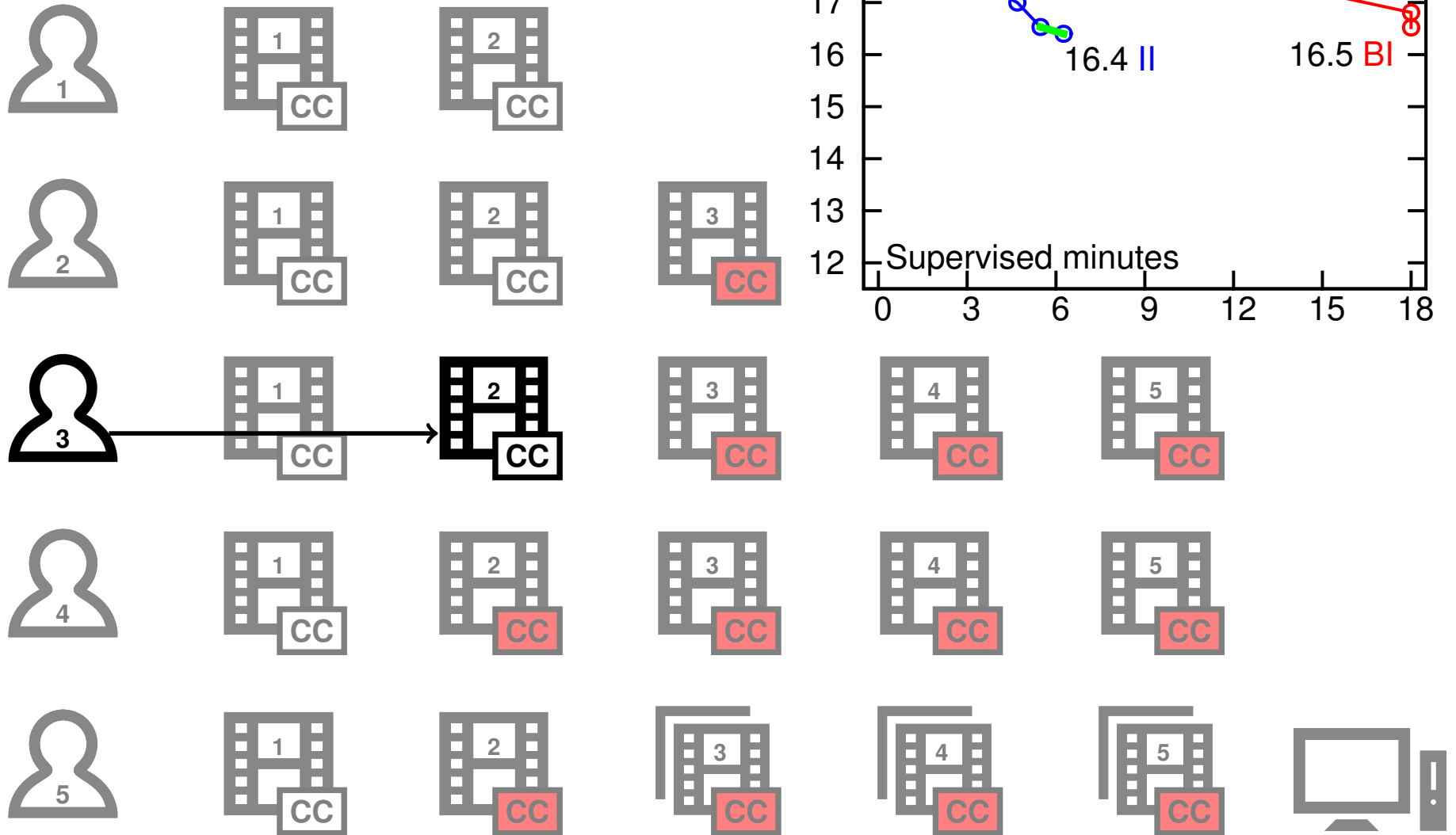
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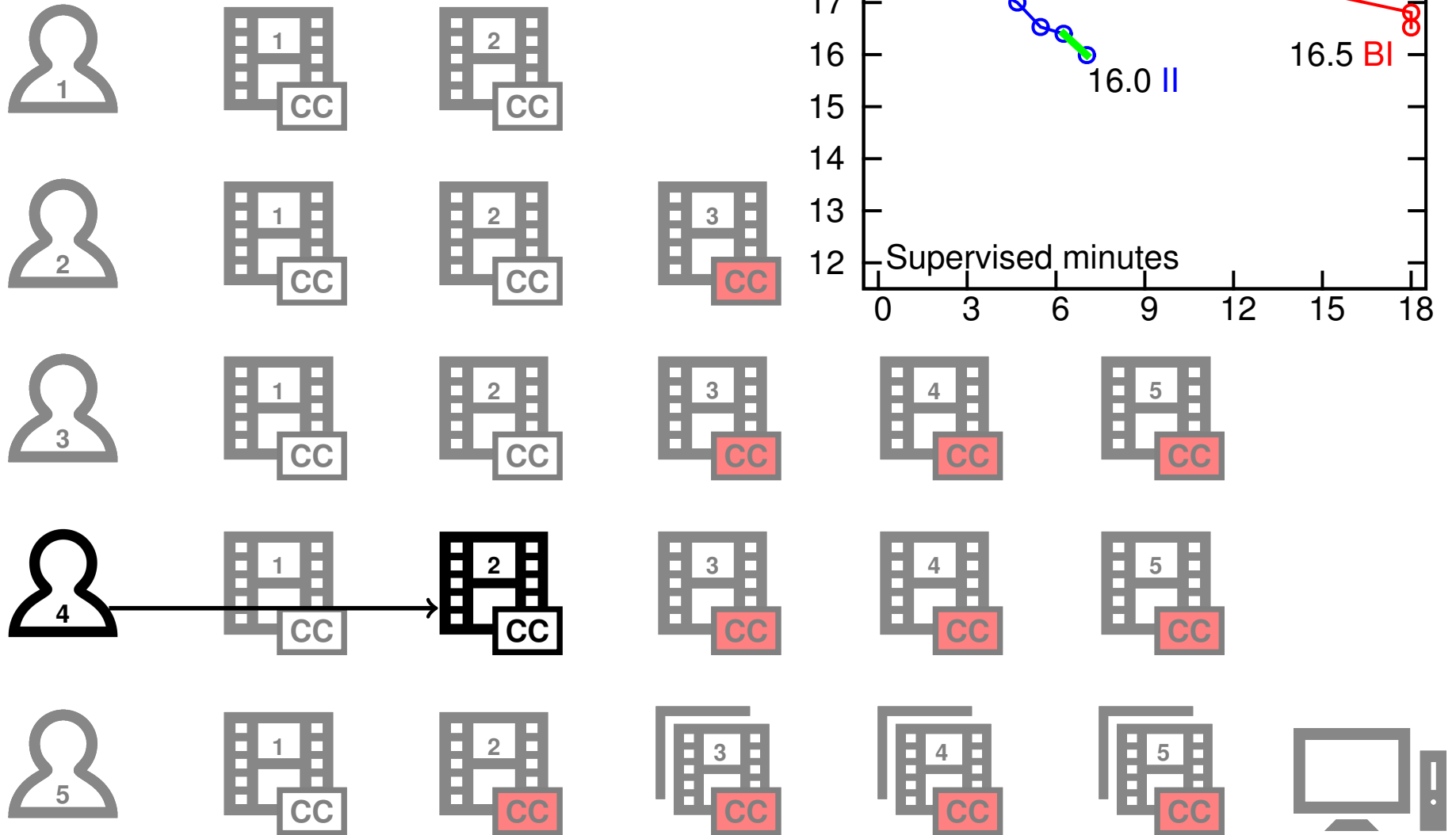
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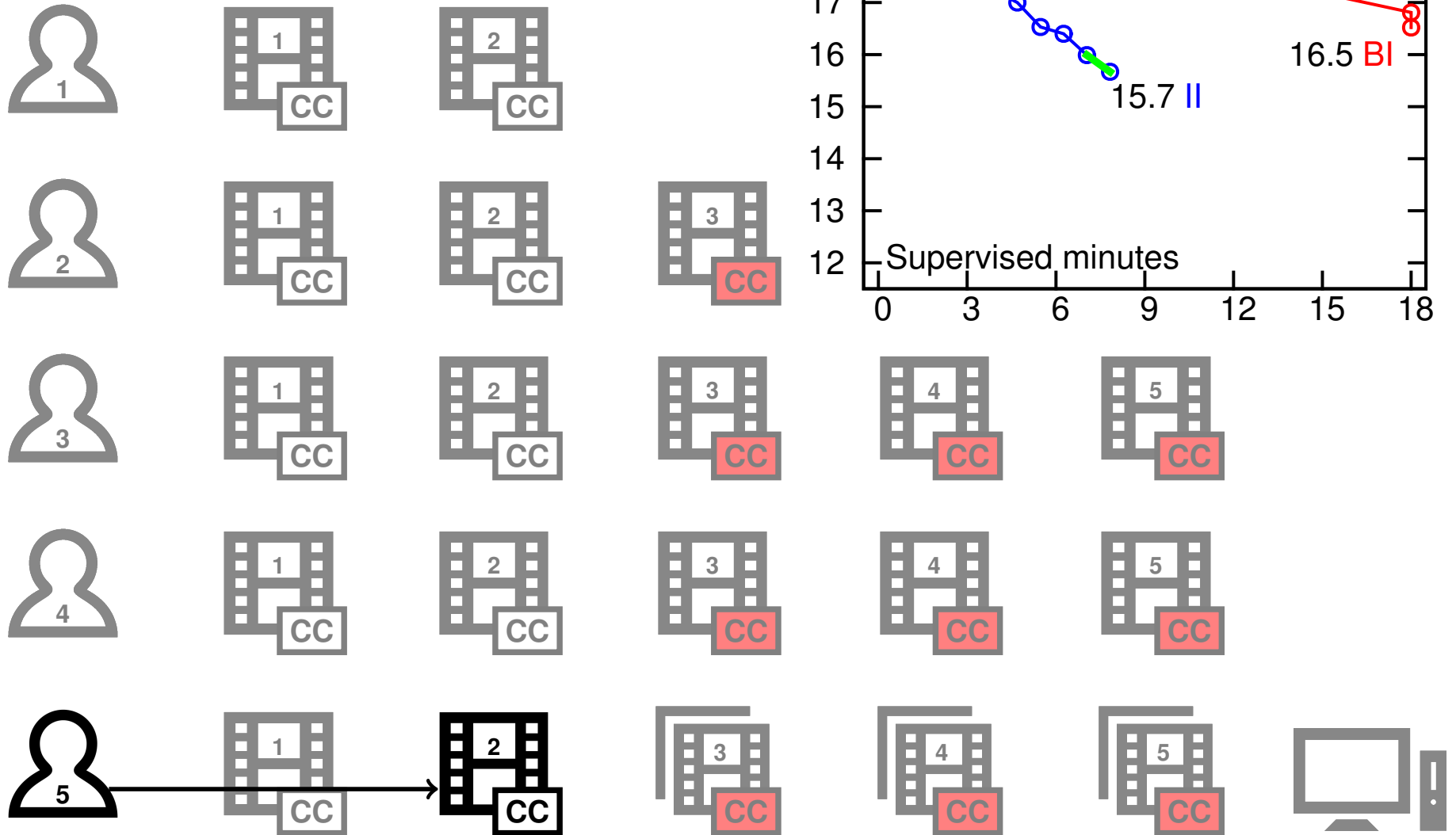
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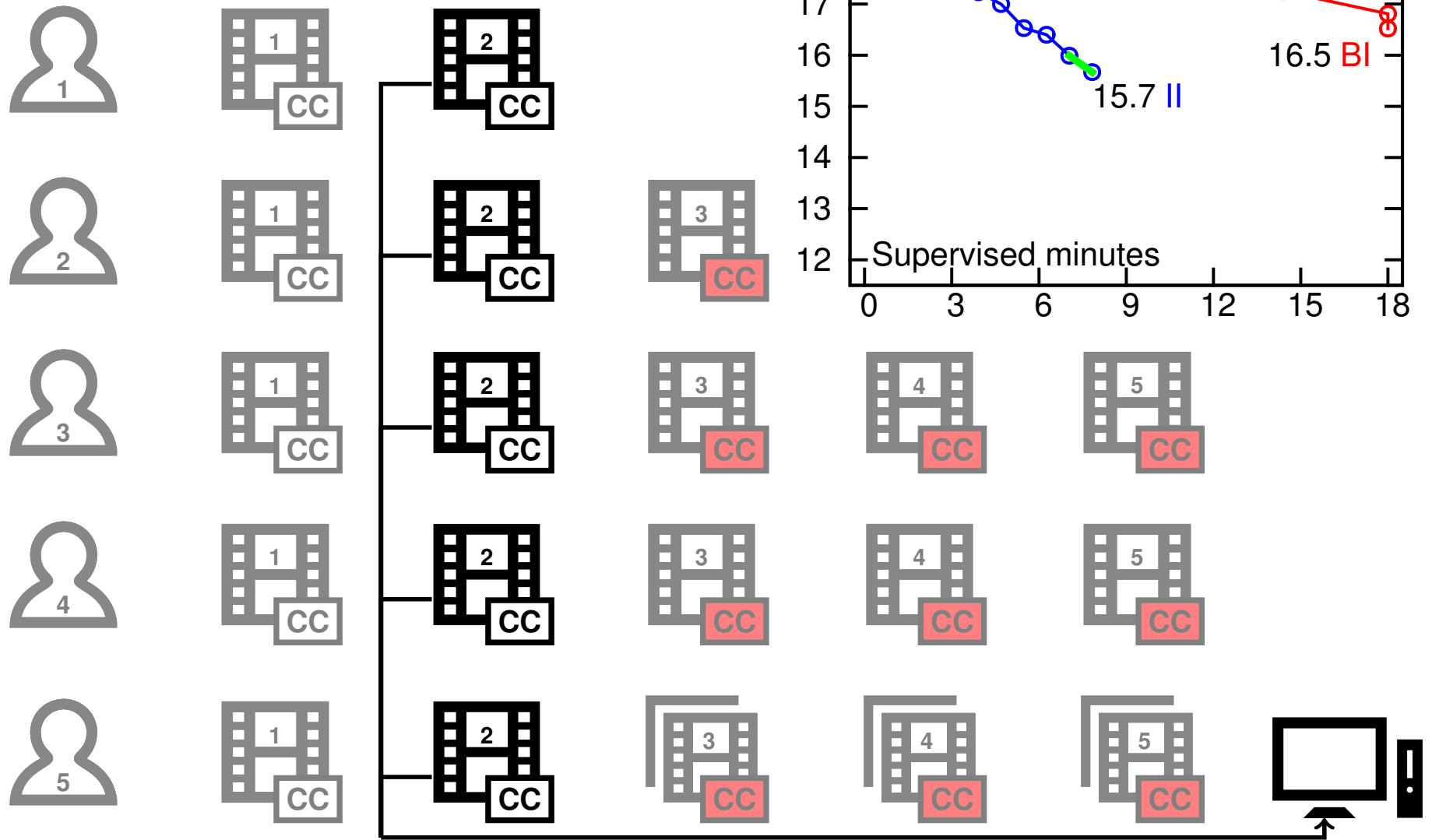
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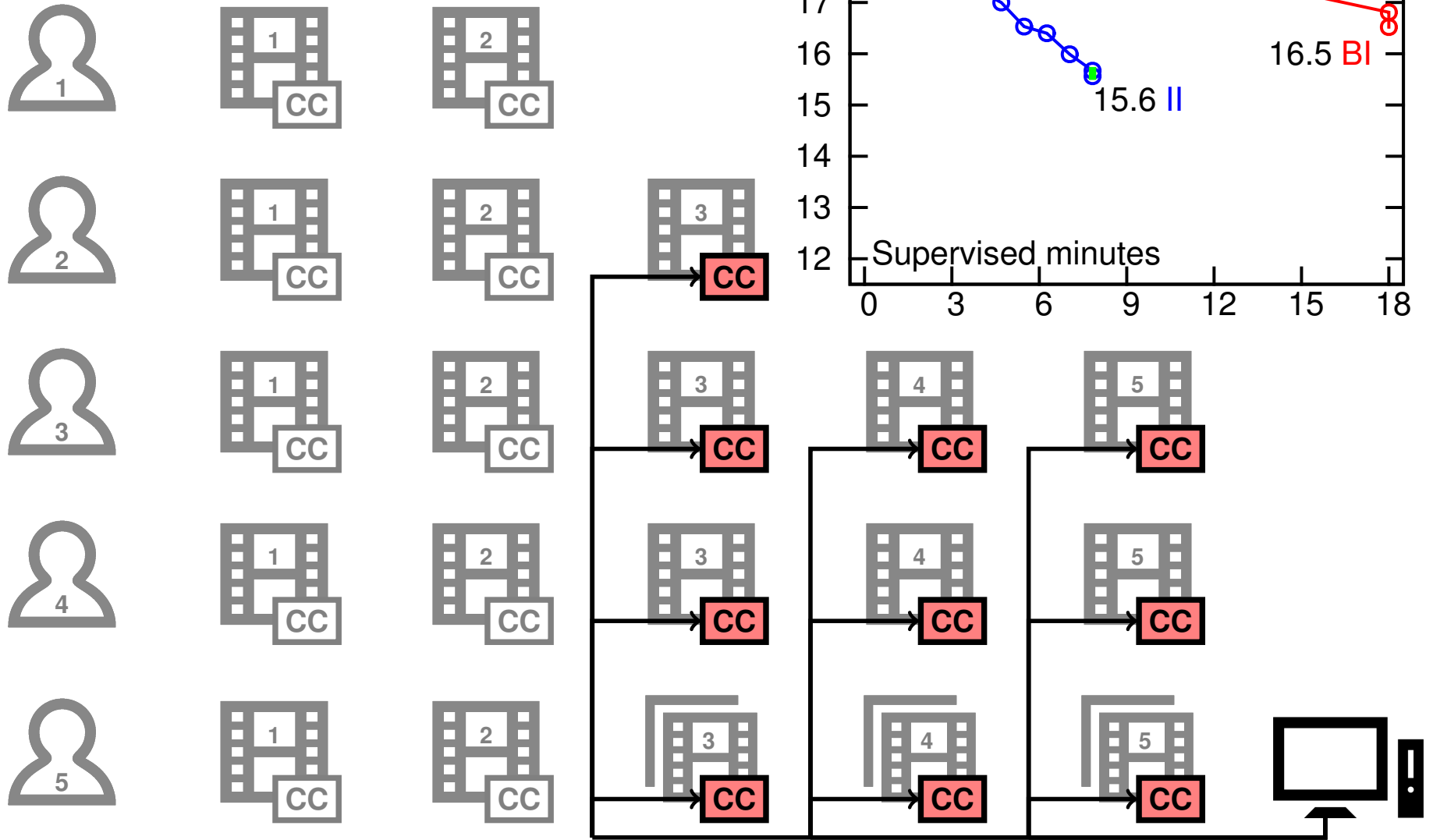
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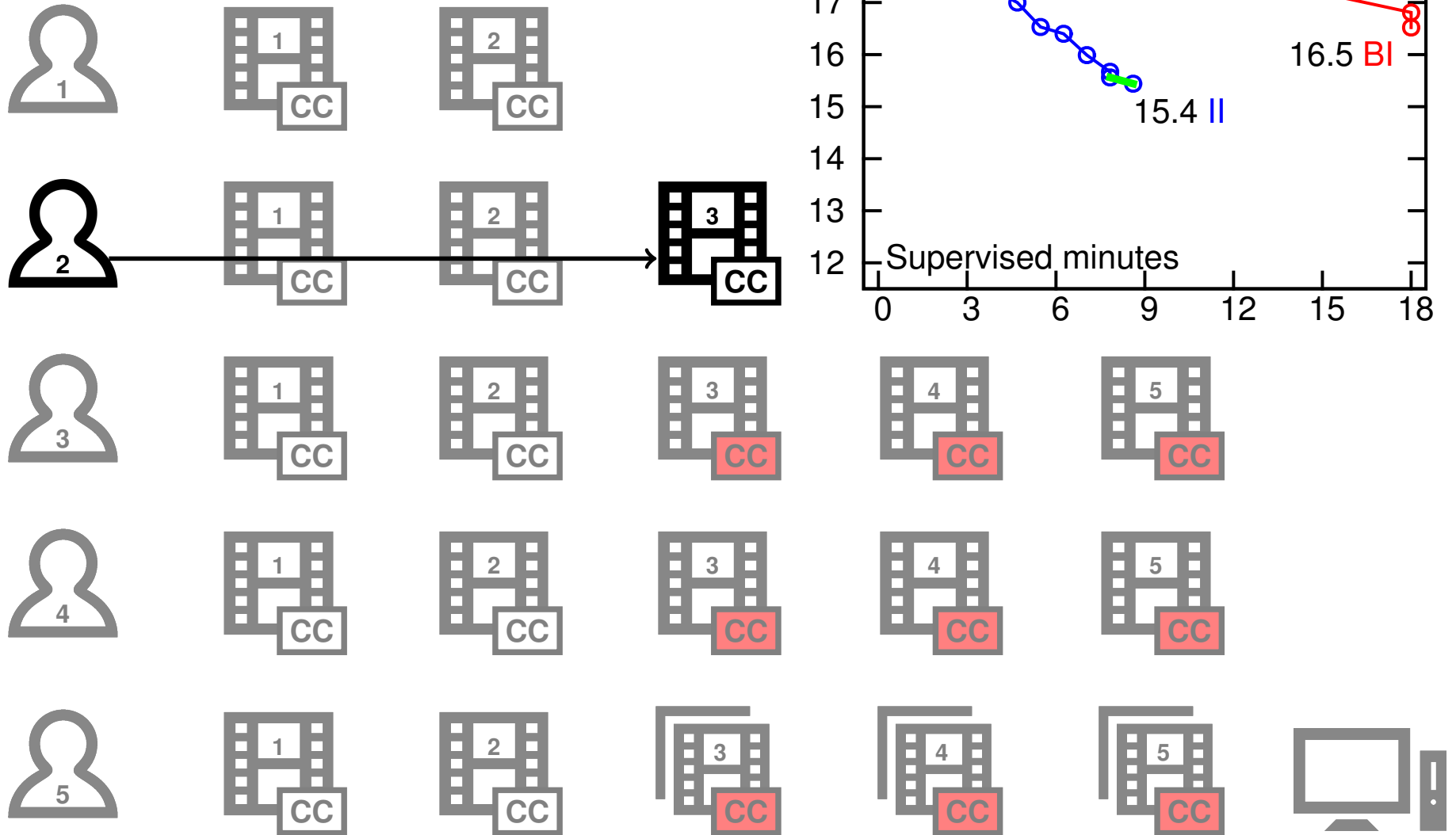
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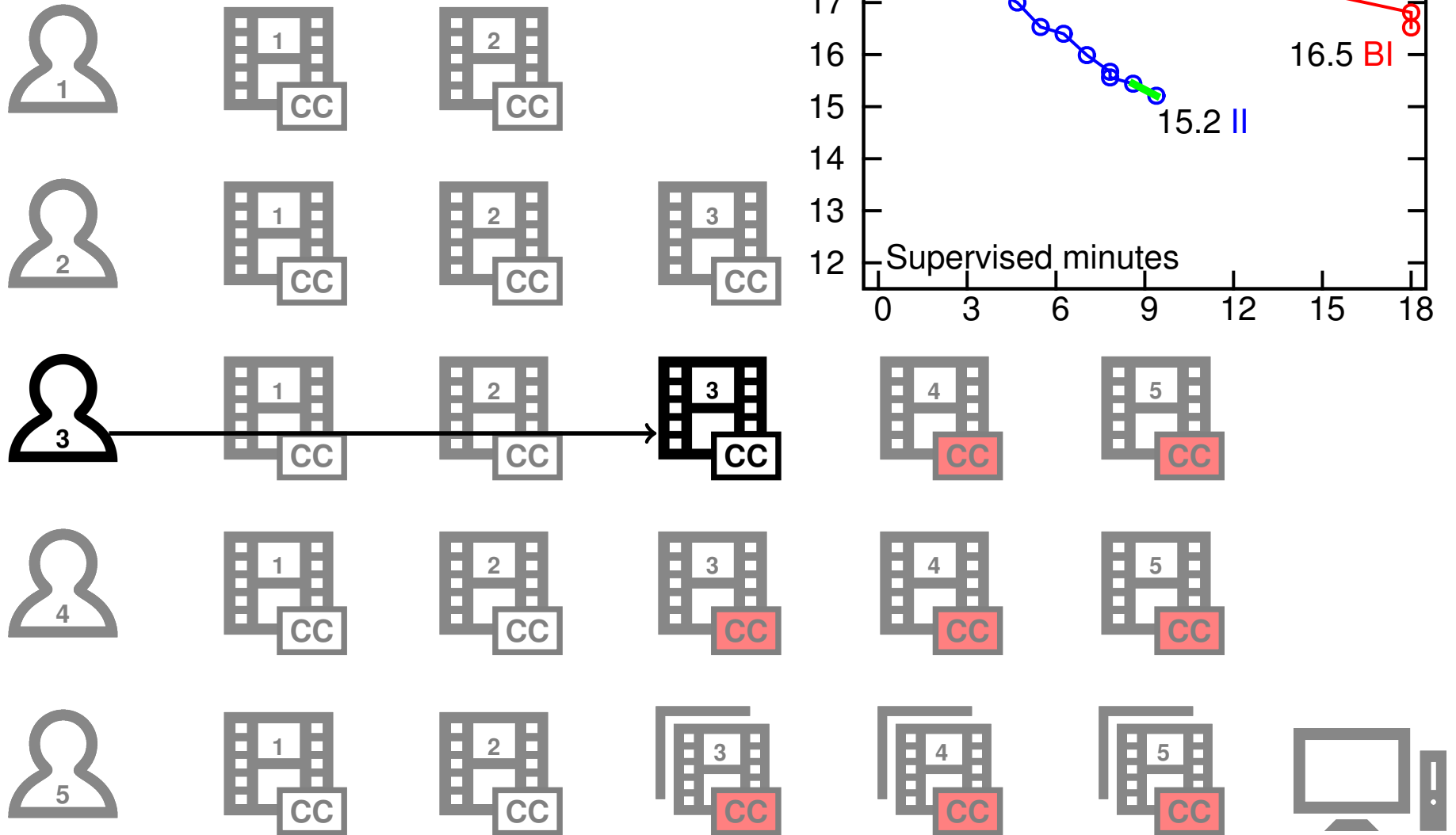
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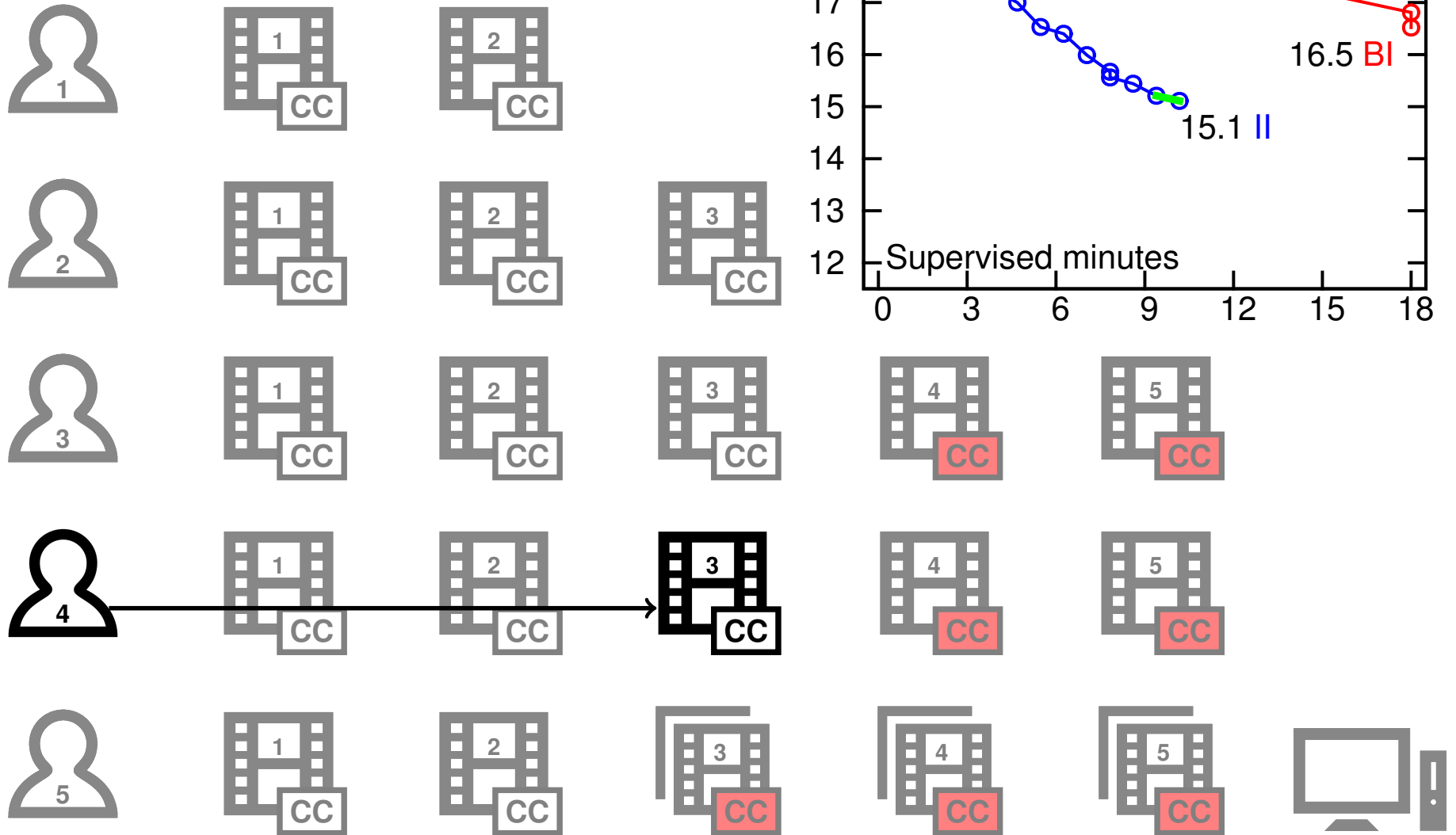
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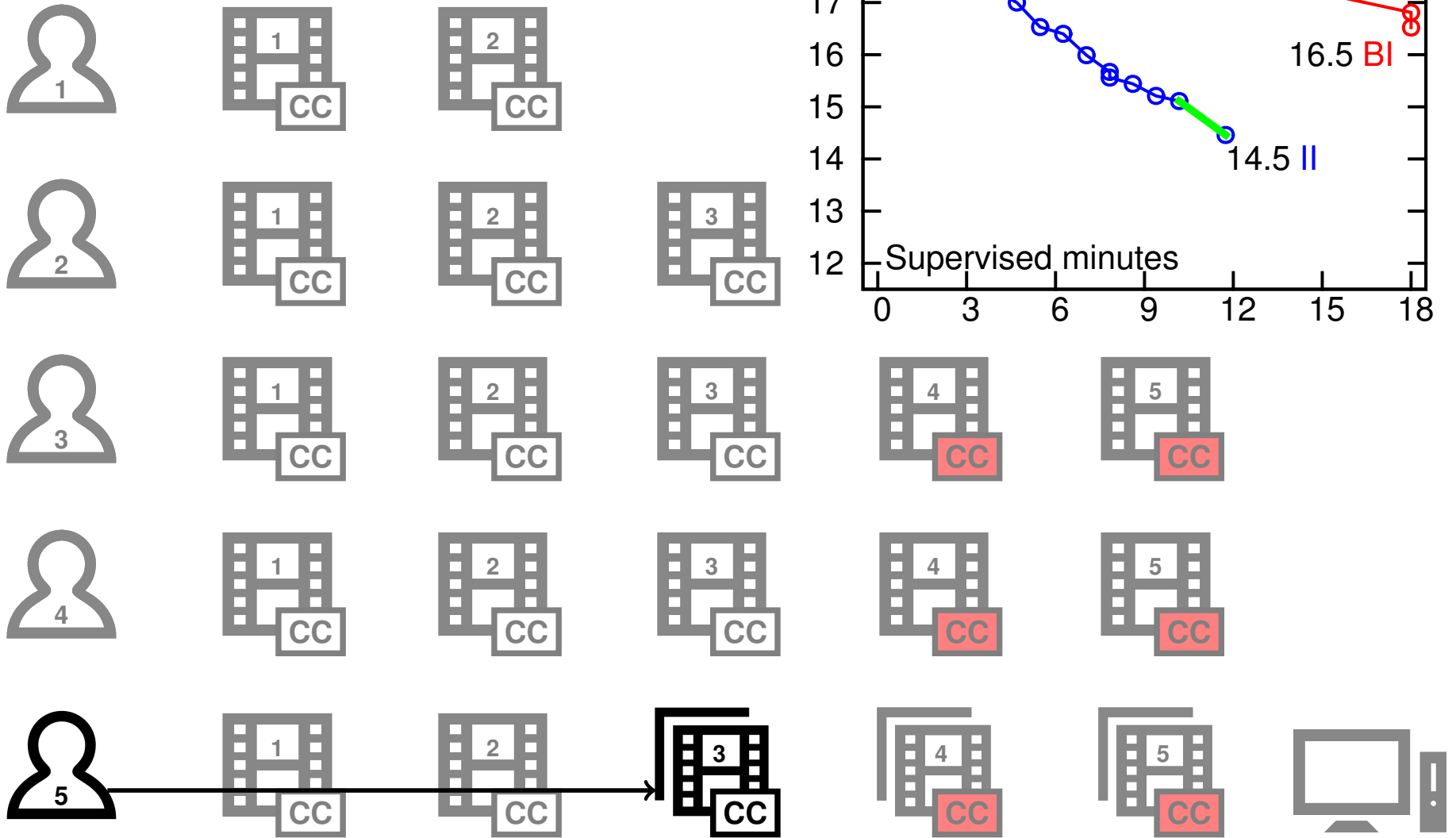
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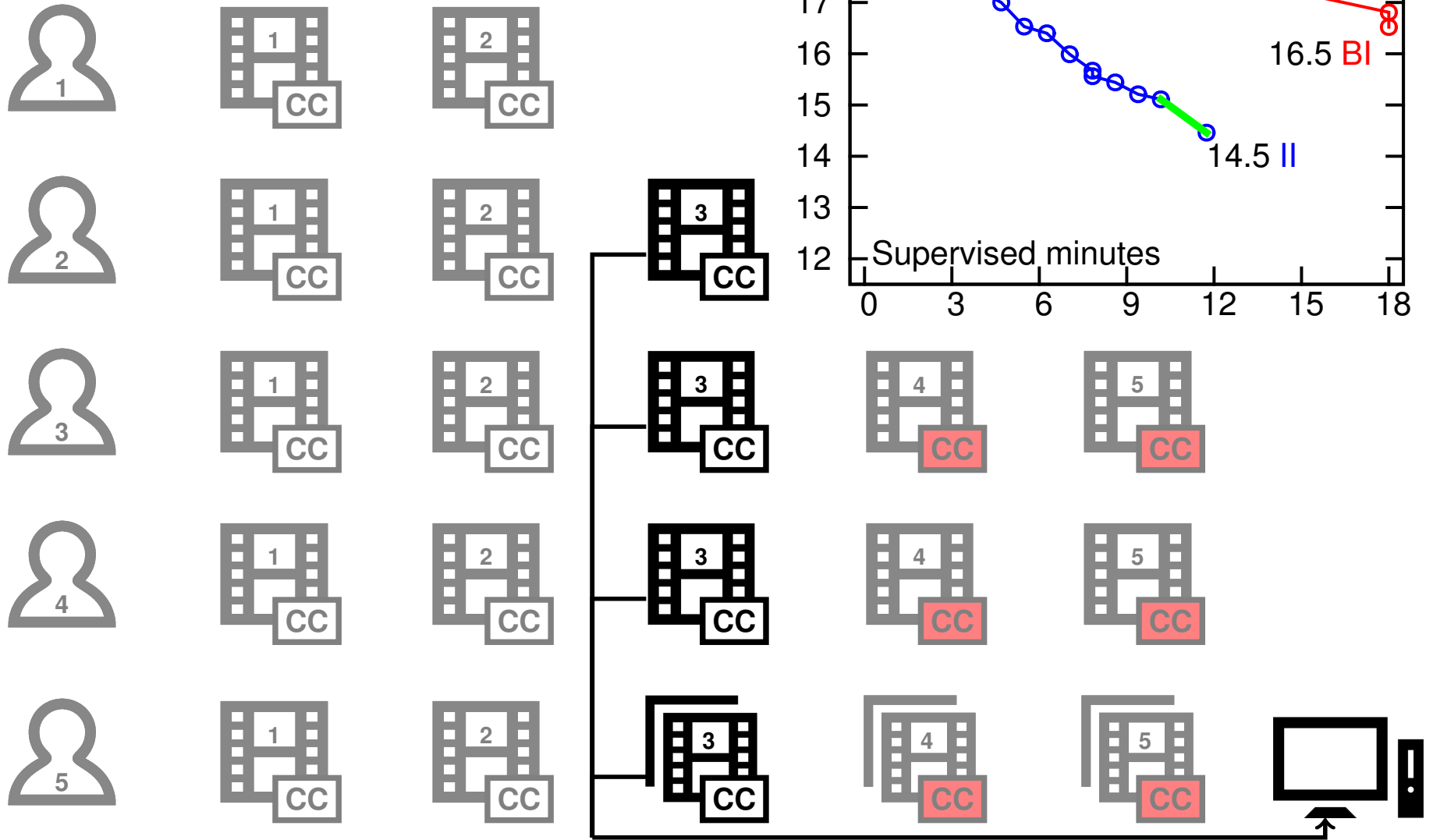
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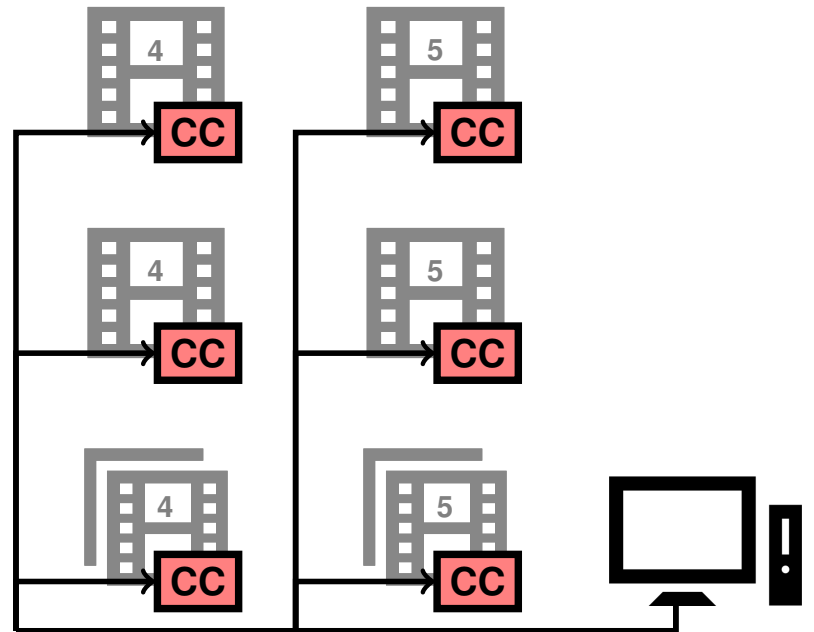
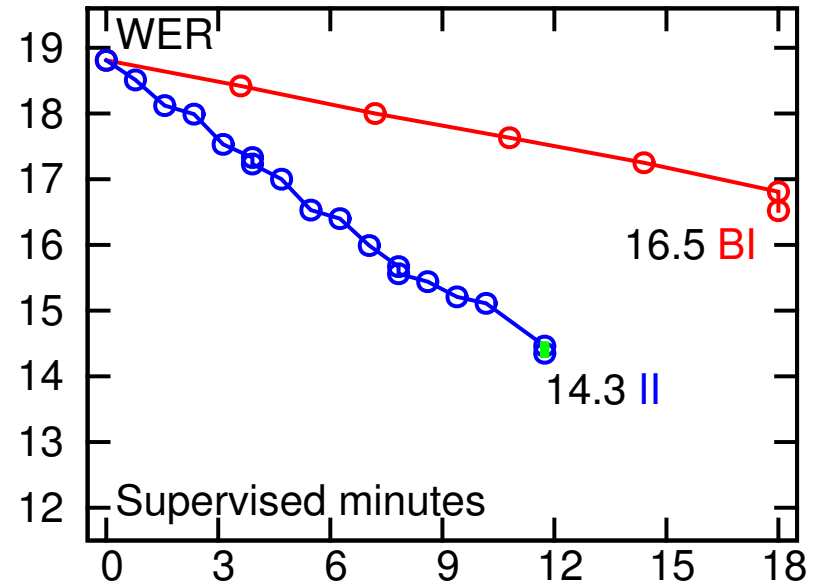
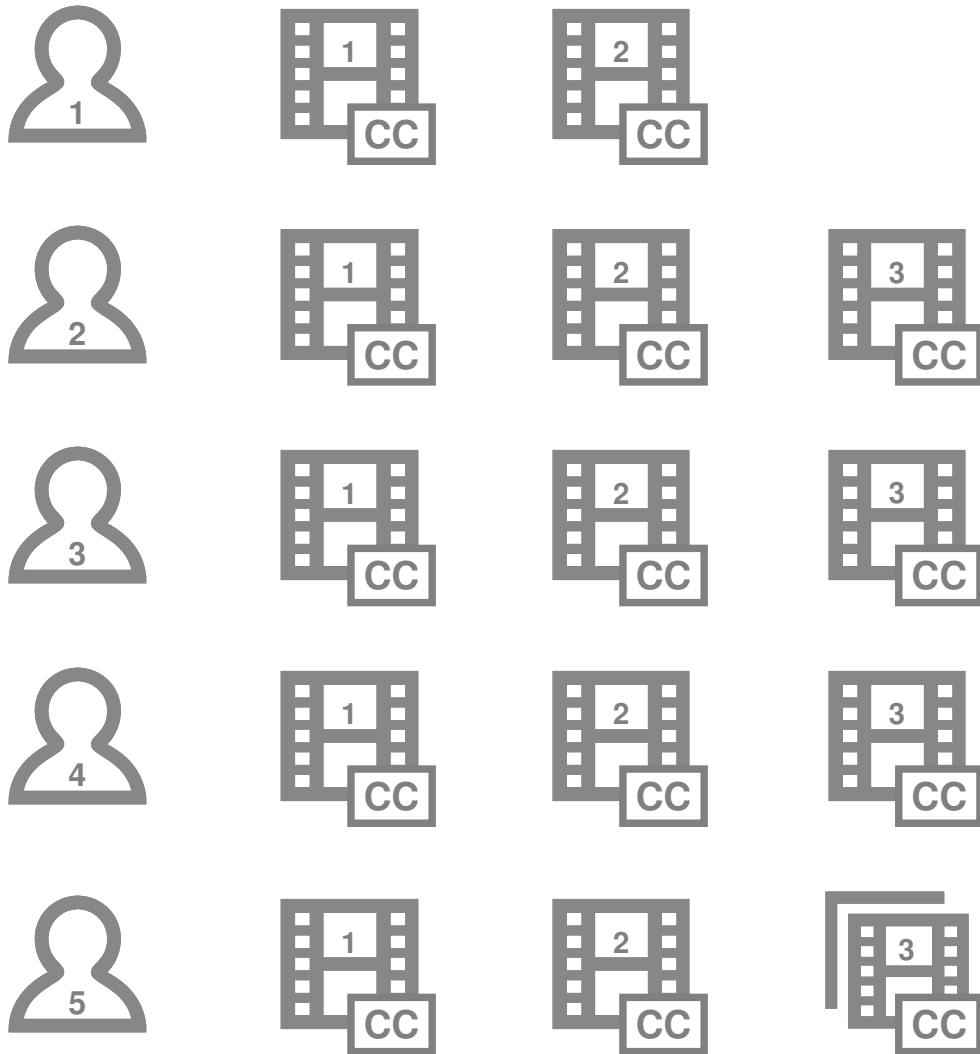
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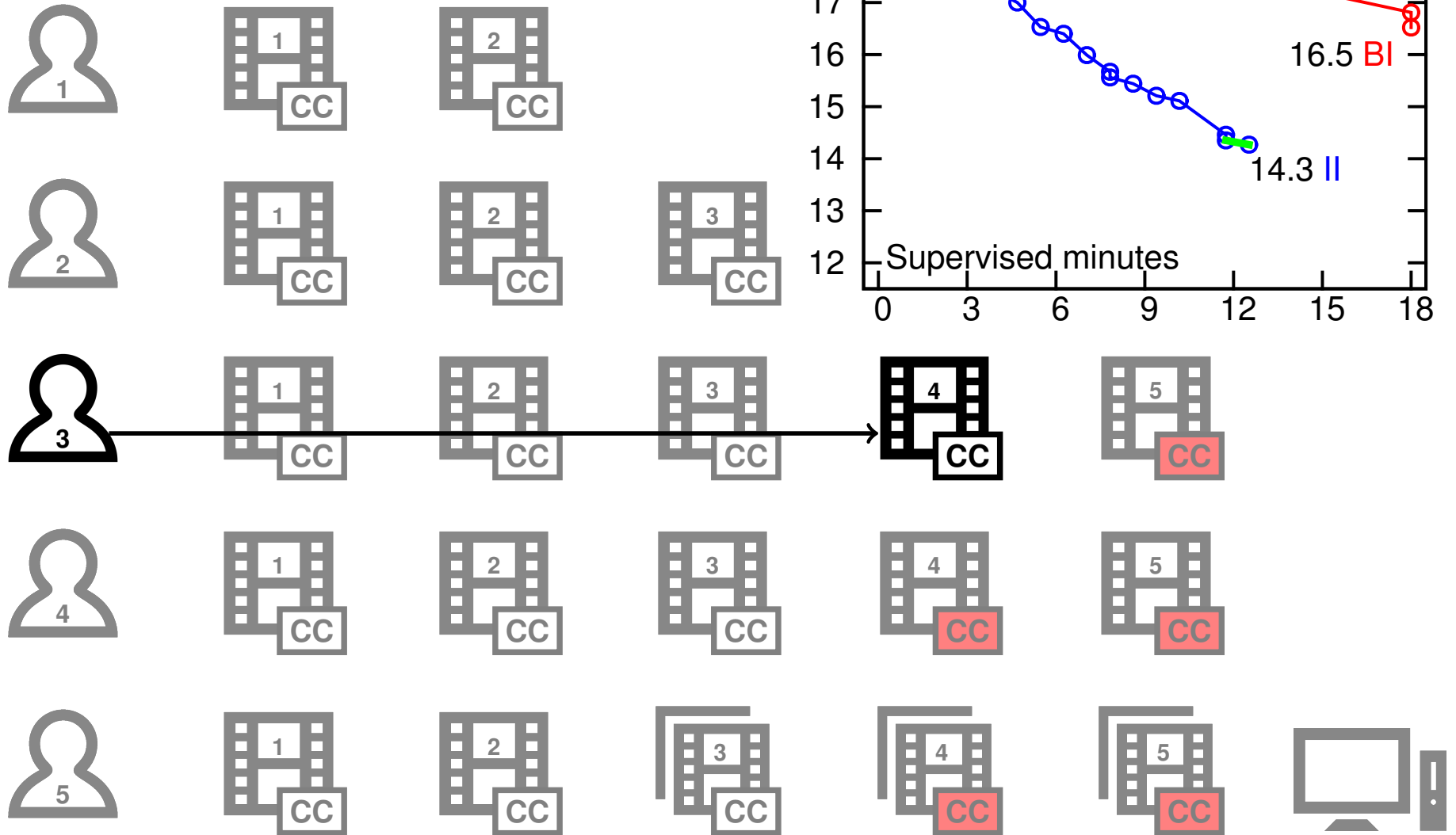
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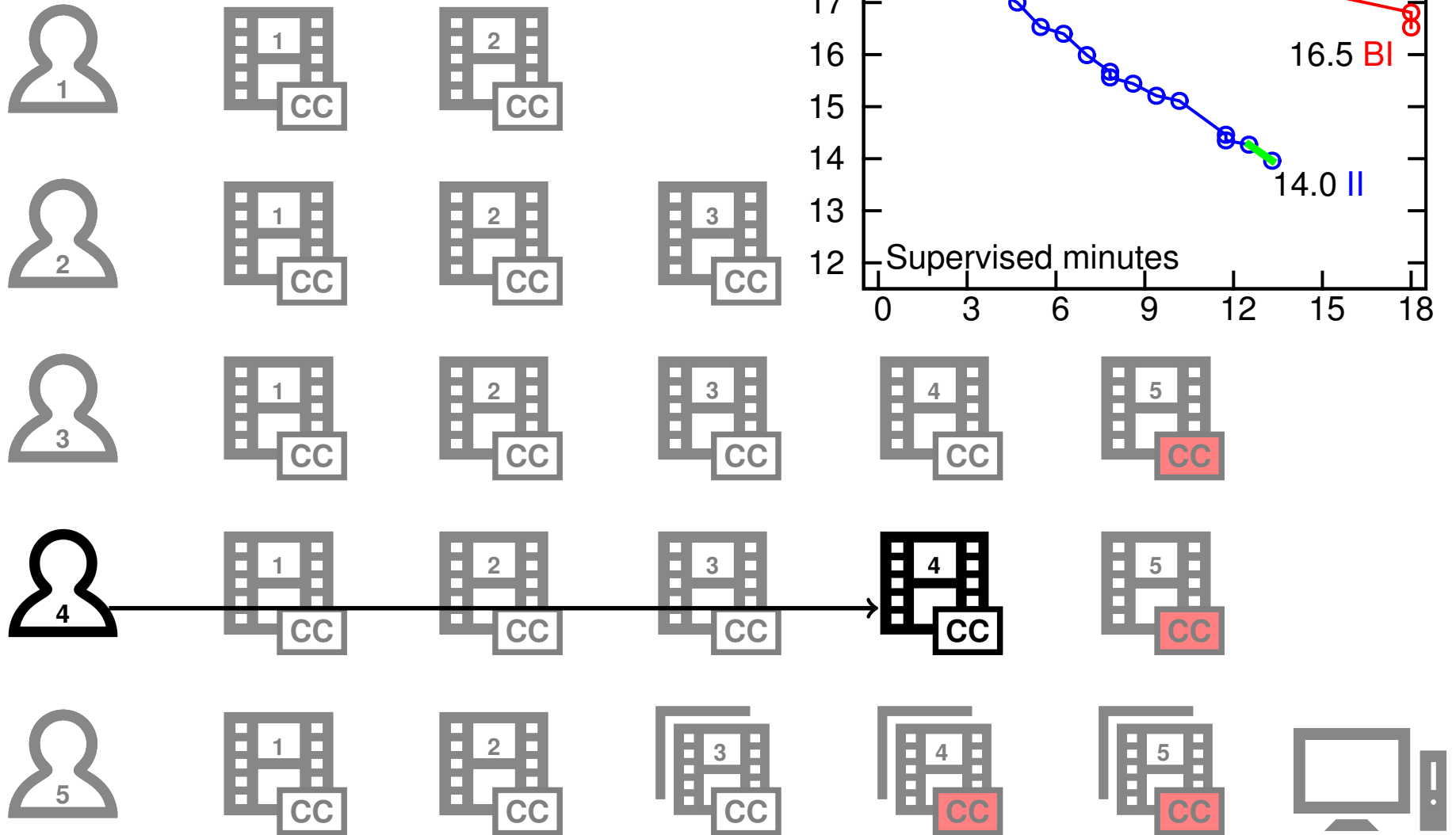
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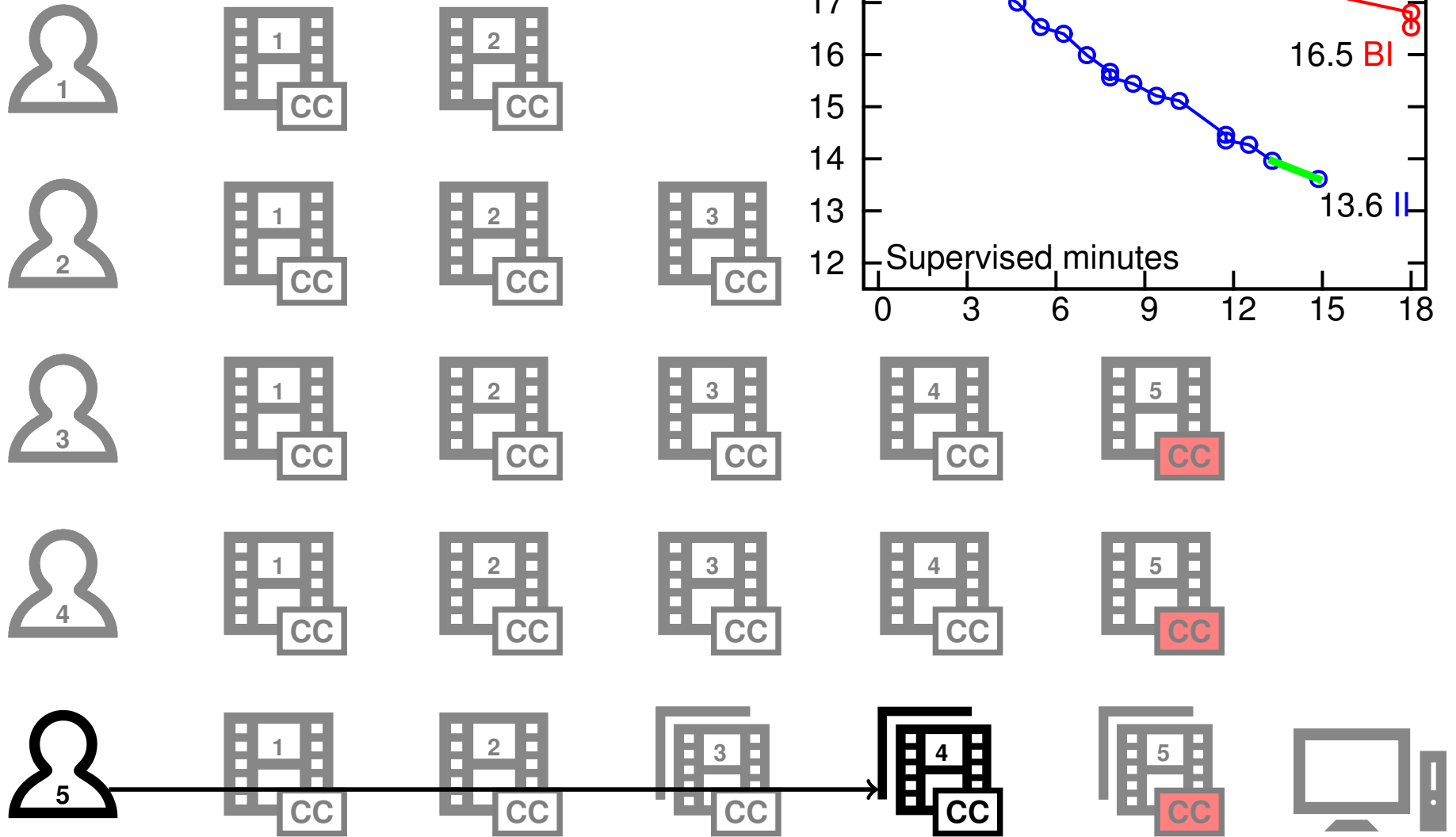
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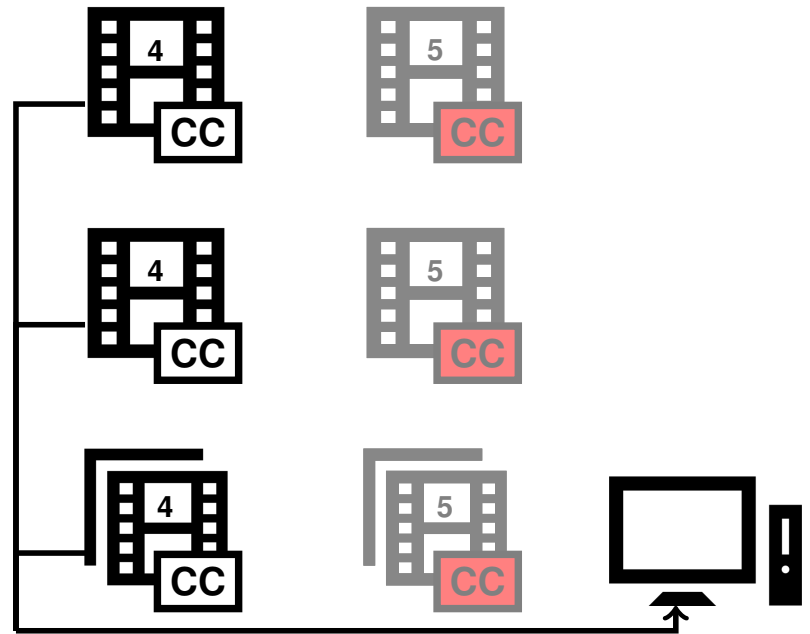
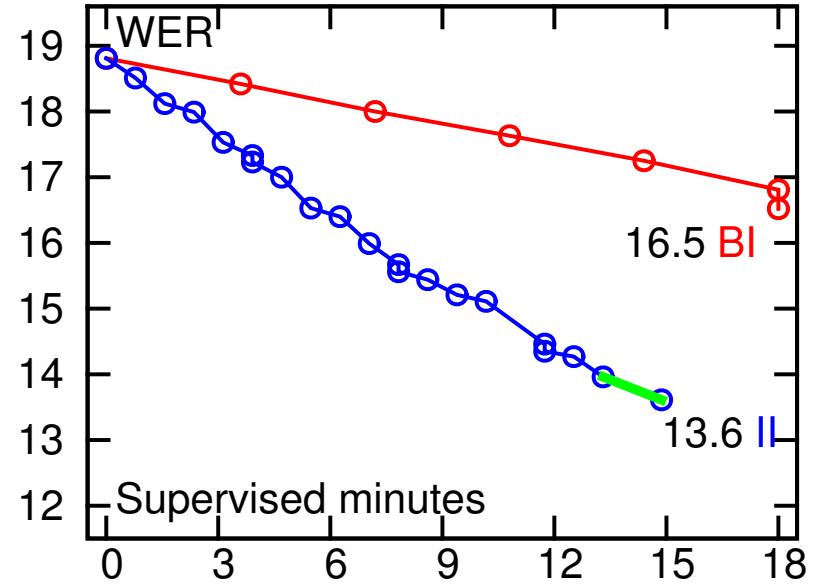
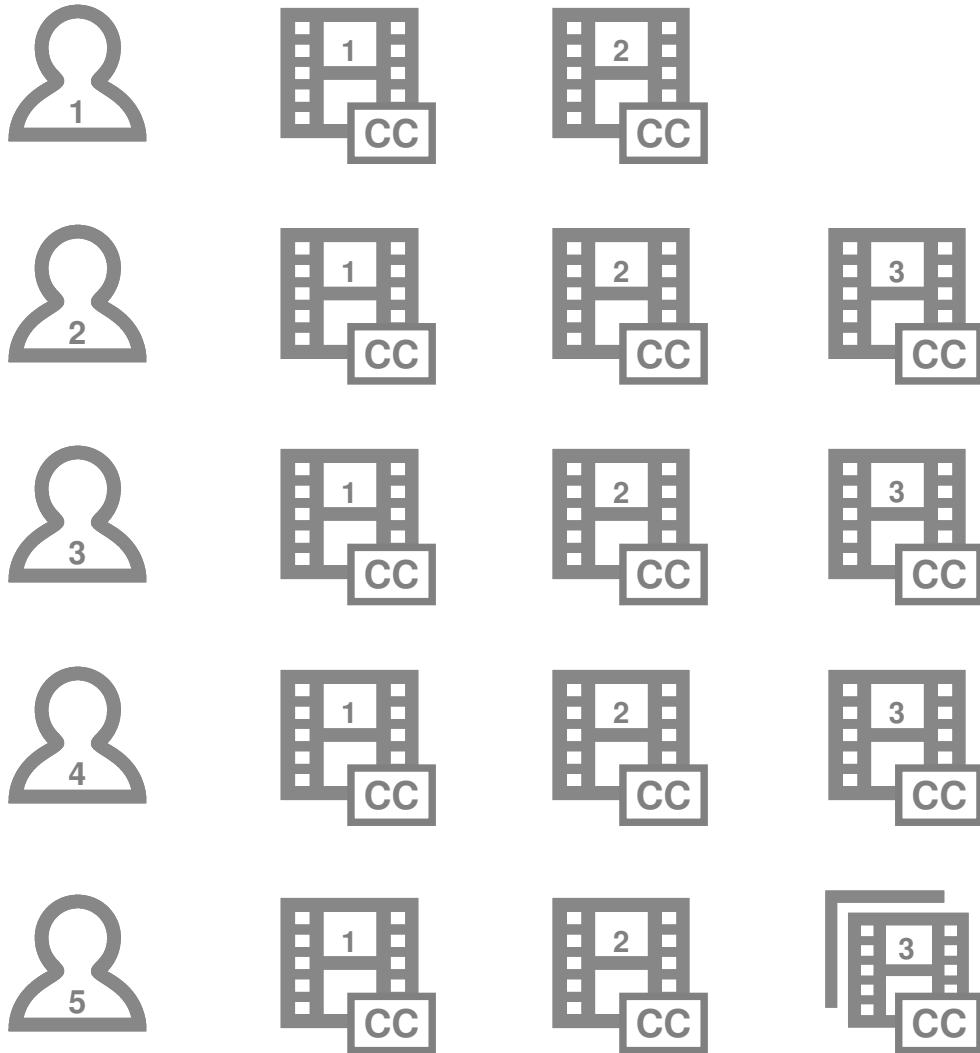
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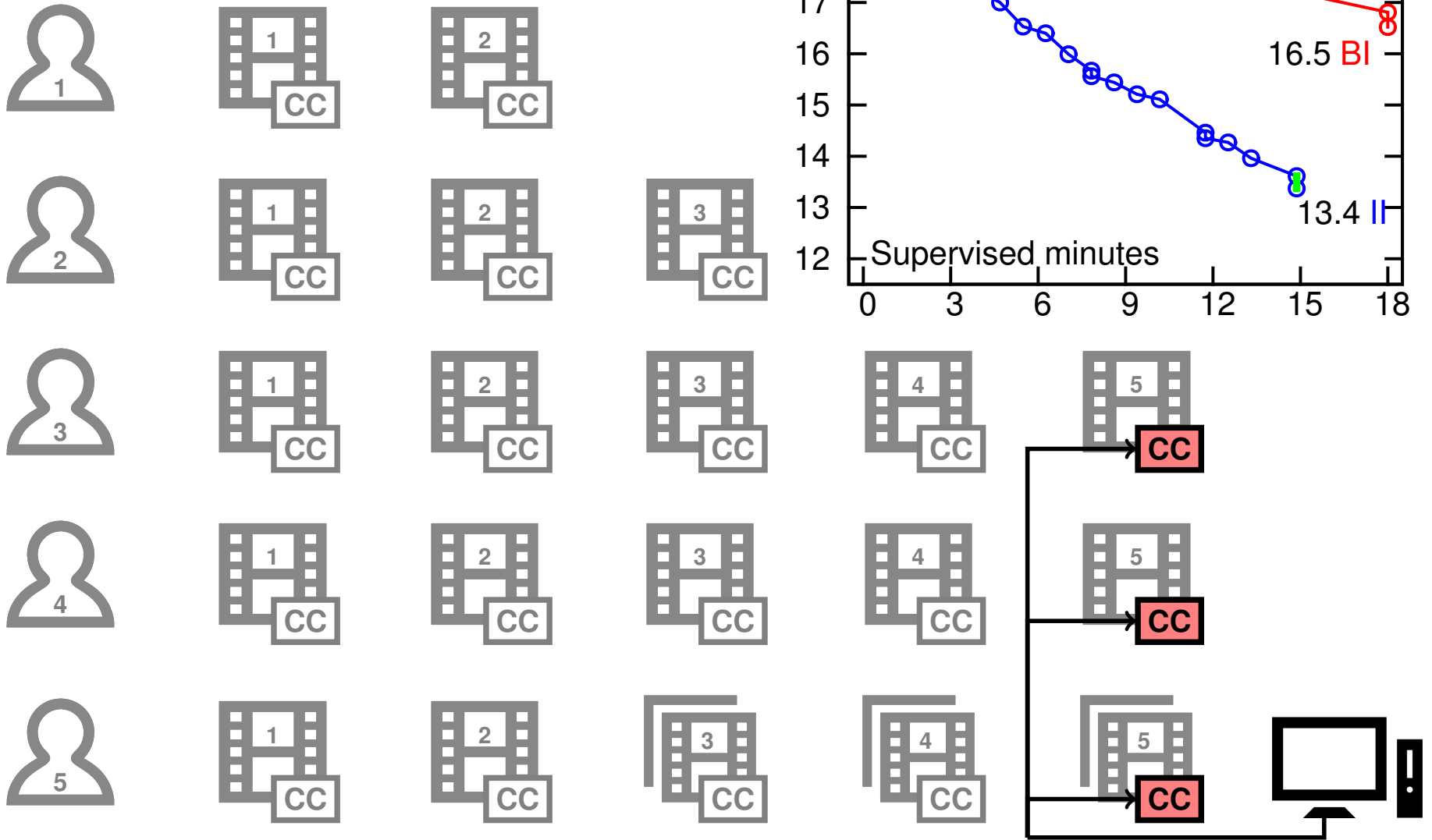
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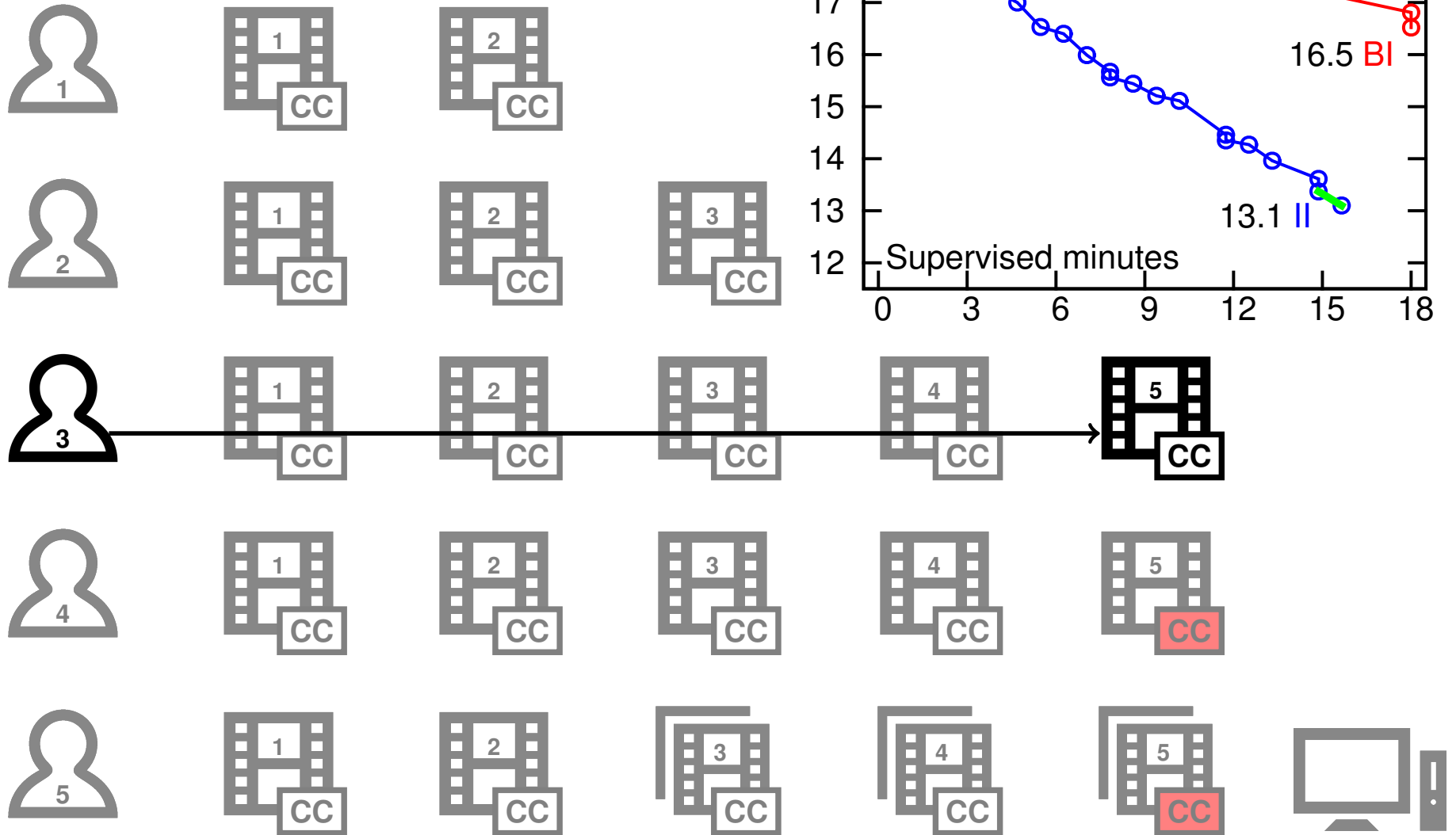
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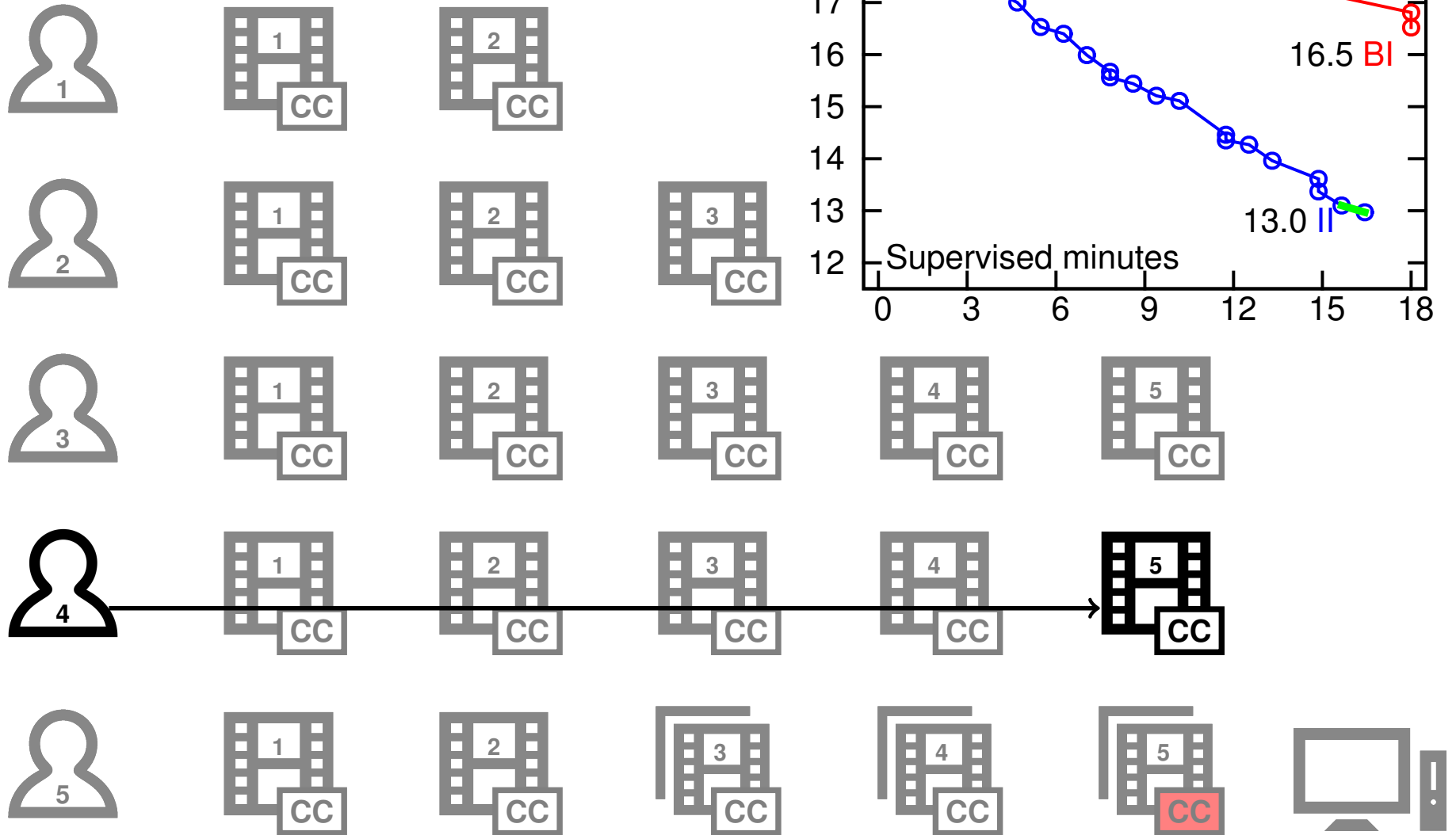
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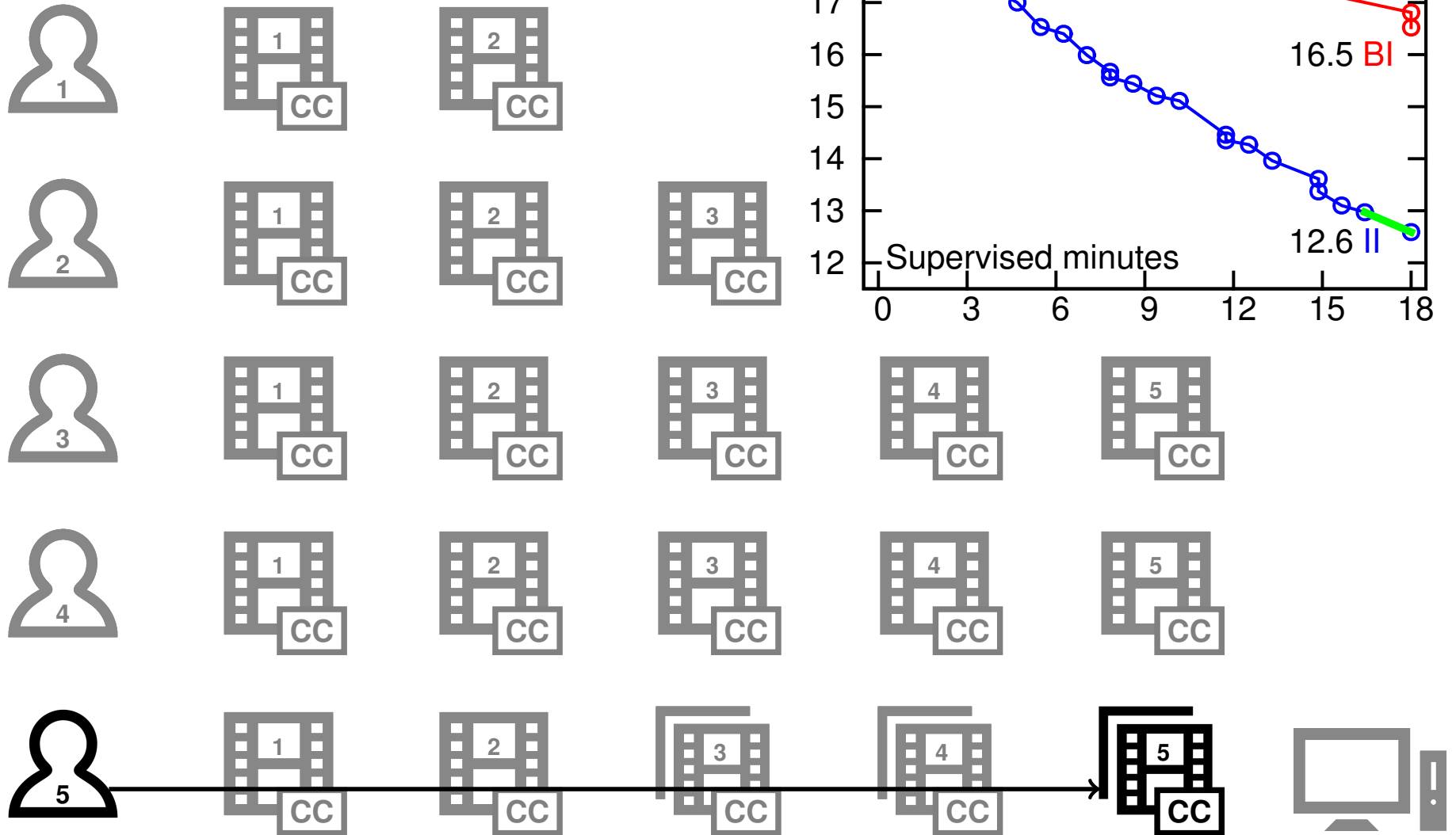
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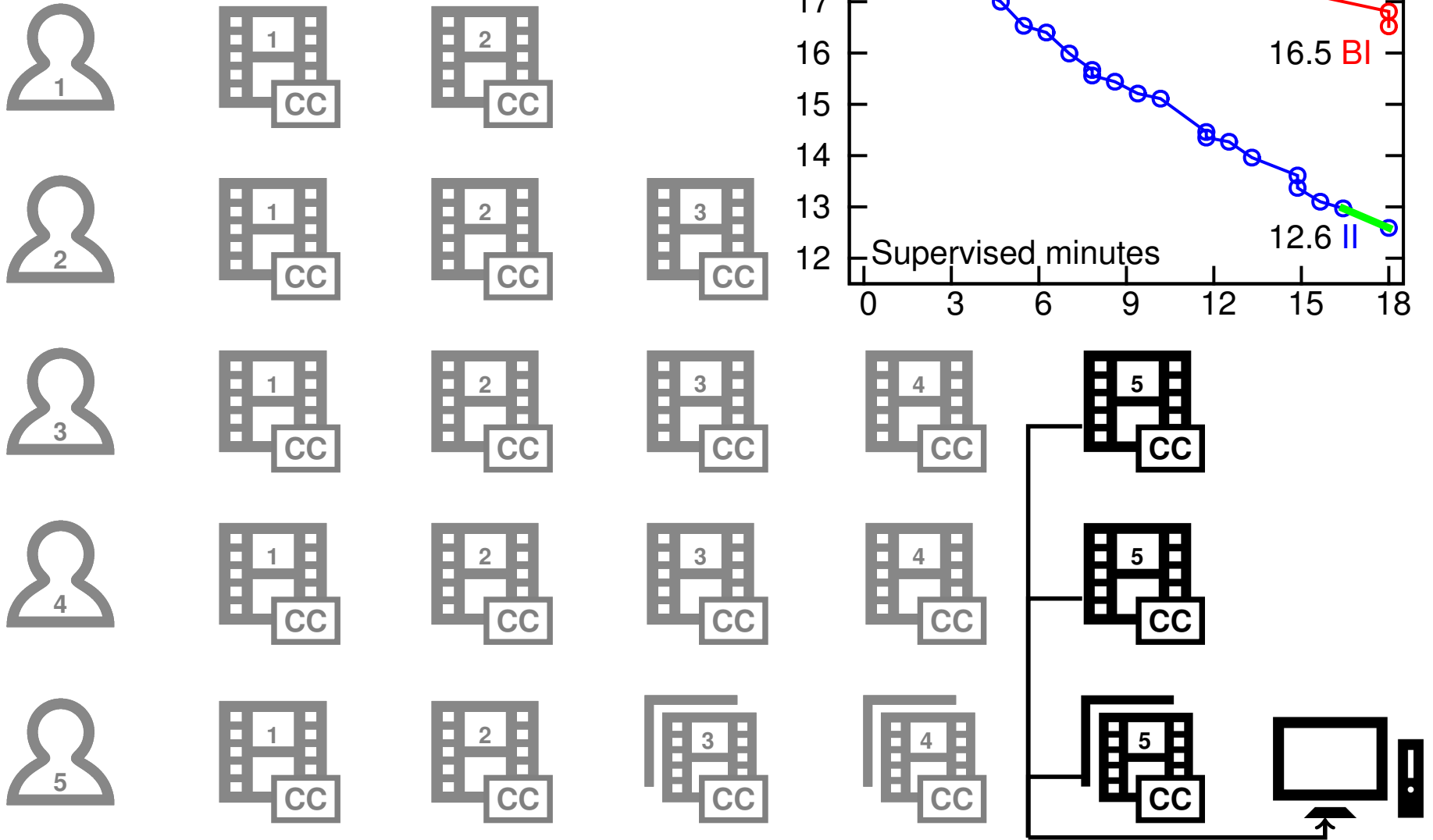
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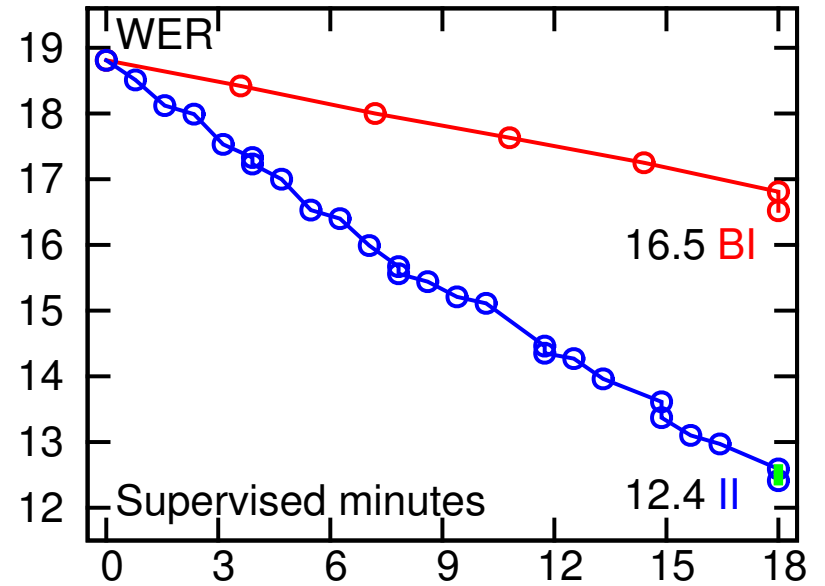
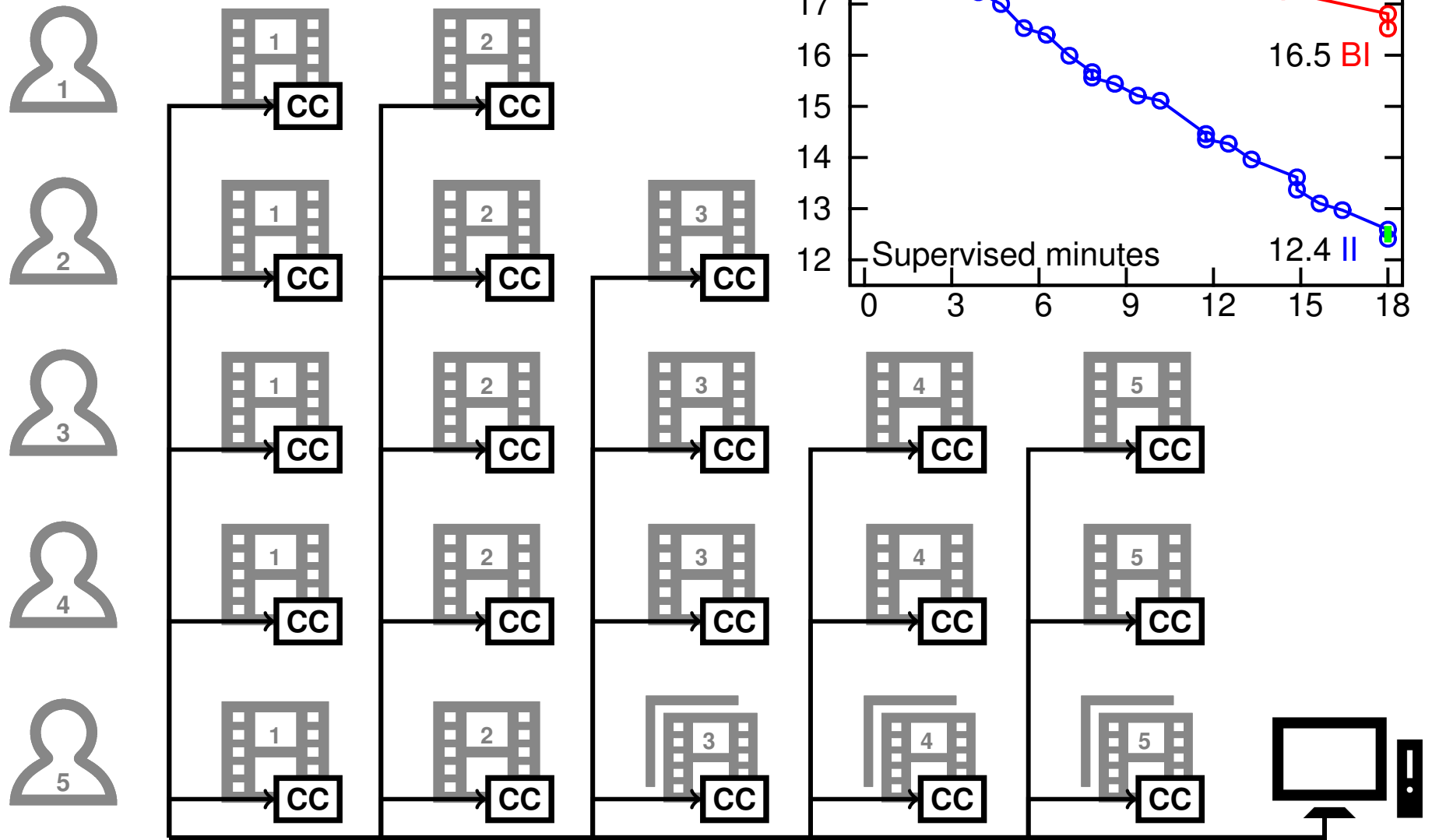
Transcription of 23 videos (3h) with **intelligent interaction**



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Integration and evaluation

- Integration and evaluation at Videolectures.NET: **Matjaz's talk**
- Integration and evaluation at poliMedia: **Carlos' talk**

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EML European Media Laboratory GmbH

EML offers research-based products, solutions and services for

- **Speech transcription** for media data (e.g. lectures, broadcast news), telephone and smartphone
- **Spoken interaction** for speech interfaces

contact: Dr. Marion Mast
email: marion.mast@eml.org
www: www.eml.org

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Beyond transLectures

- Multilingual MOOC aggregator platform
- 12 universities and companies in 8 EU countries
- EMMA MOOCs will go live in September 2014
- MOOCs automatically transcribed and translated
- Languages transcribed
 - English, Spanish, French, Italian, Dutch, Portuguese and Estonian
- Language pairs translated
 - Spanish, French, Italian, Dutch, Portuguese and Estonian → English
 - English → Spanish and Italian
- EMMA open for providers wishing to make MOOCs available in multiple languages

