Web Map Service Performance Testing based on Extents Generated Randomly or by Algorithm Simulating General User Behaviour

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Tests for GeoWeb services

- Based on **randomly** generated **extents**
- **Reccomendations** from several papers: Do your test as much **similar to user behaviour**
- Question: Is there a **difference** between
  - Tests based on randomly generated extents
  - Tests based on algorithm that simulates user behaviour

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Simulating user behaviour

- Simple algorithm:
  - a virtual user **zooms** to a **random scale** level,
  - then he **moves randomly** (but in a way that keeps extents close to each other) in the **same scale** level,
  - then he **zooms in or out**, moves to another location and moves again.

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Software and data

- **GeoServer** 2.x
- **WMS tester** 1.3.4
- Open Street Map (**OSM**) for Slovakia – vector data in PostgreSQL/PostGIS – 1 GB of data
- The Shuttle Radar Topography Mission (**SRTM**) – raster data – 2 GB of data in GeoTIFF format with pyramids and tiles

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Tests

- Durations: 60, 300, 1500 s
- Clients: 1, 2, 5, 10
- Number of test: for each combination (duration + clients): 10 independed tests

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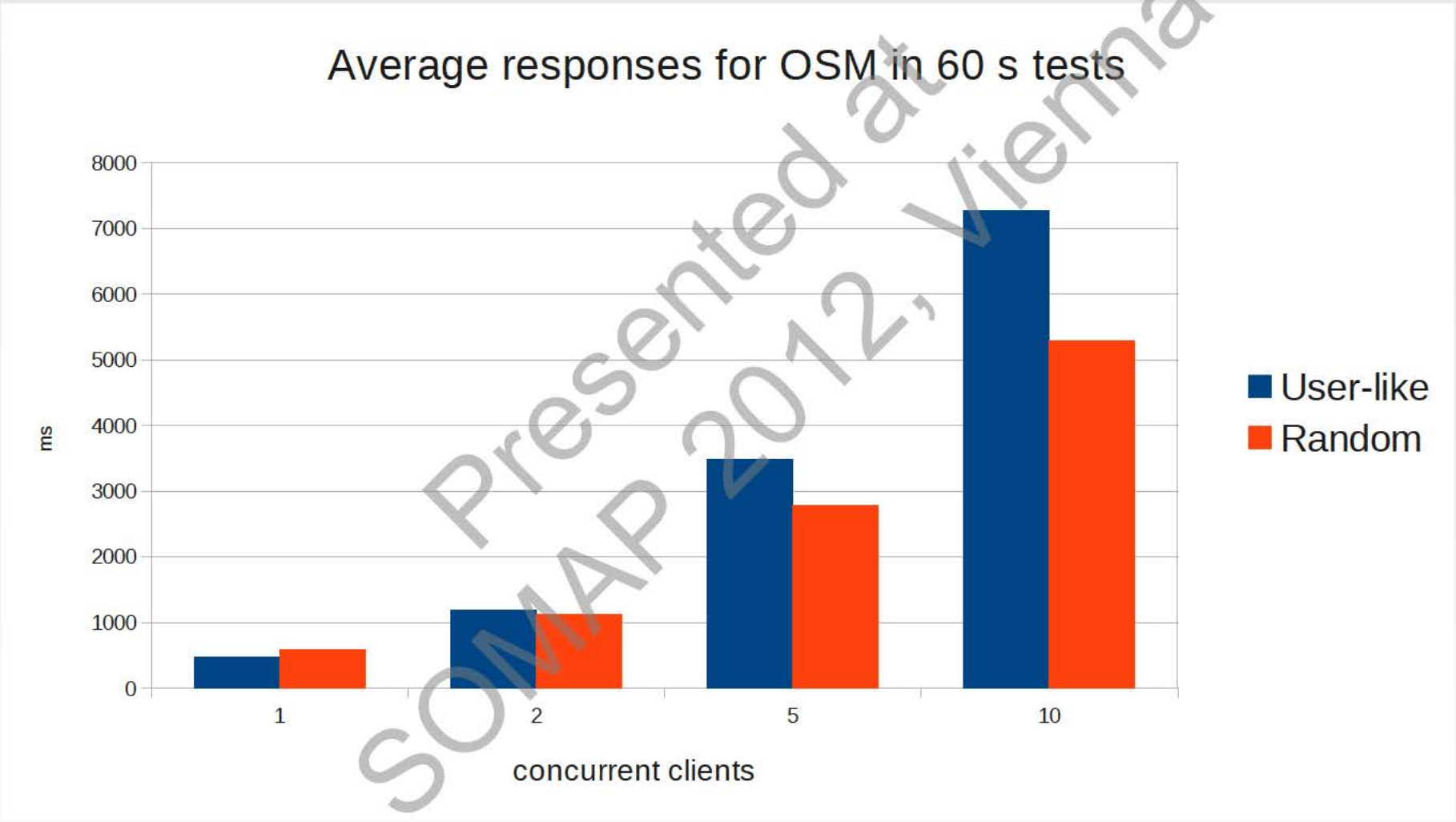
Results for 60s for OSM



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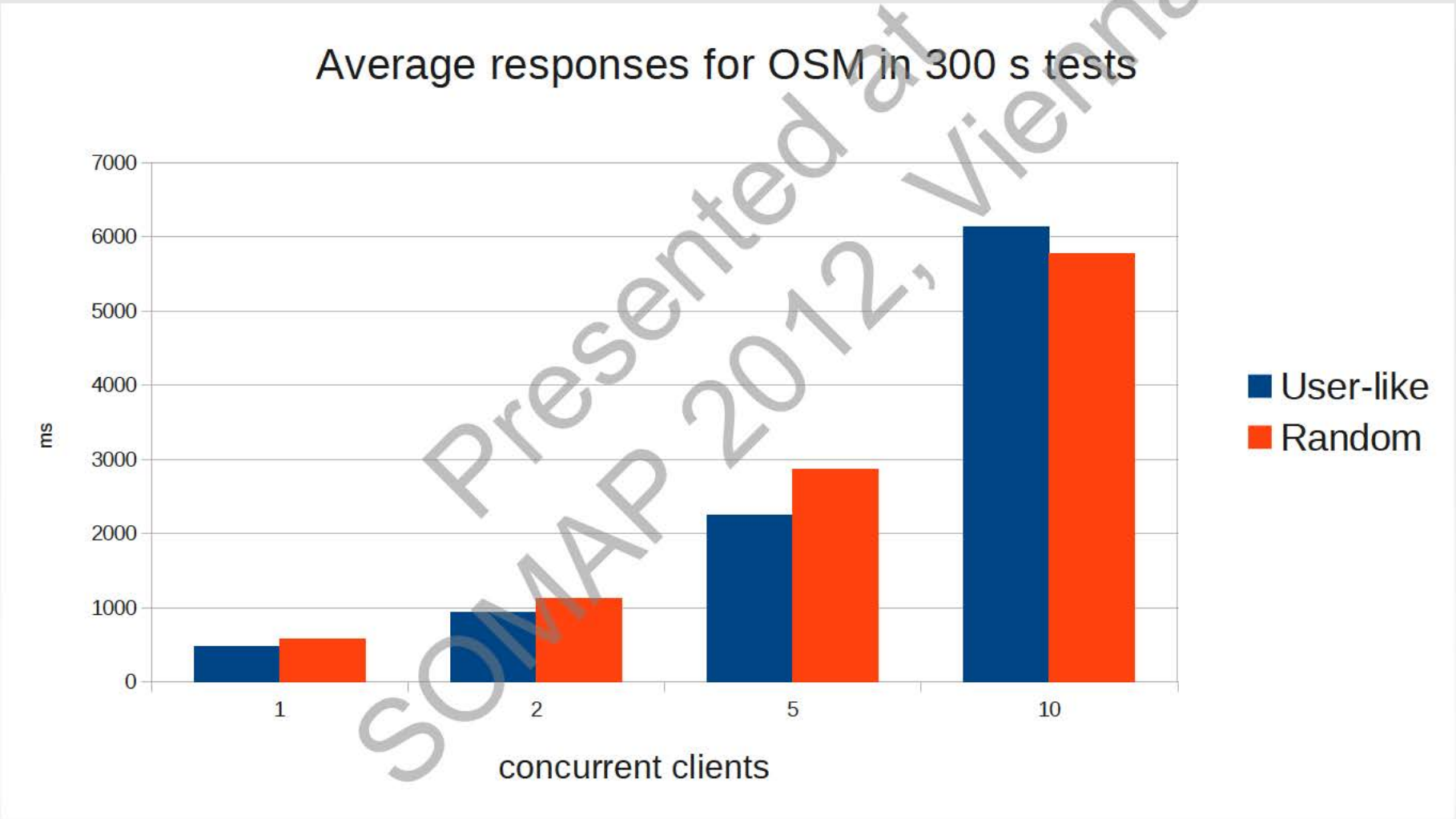
Results for 300s for OSM



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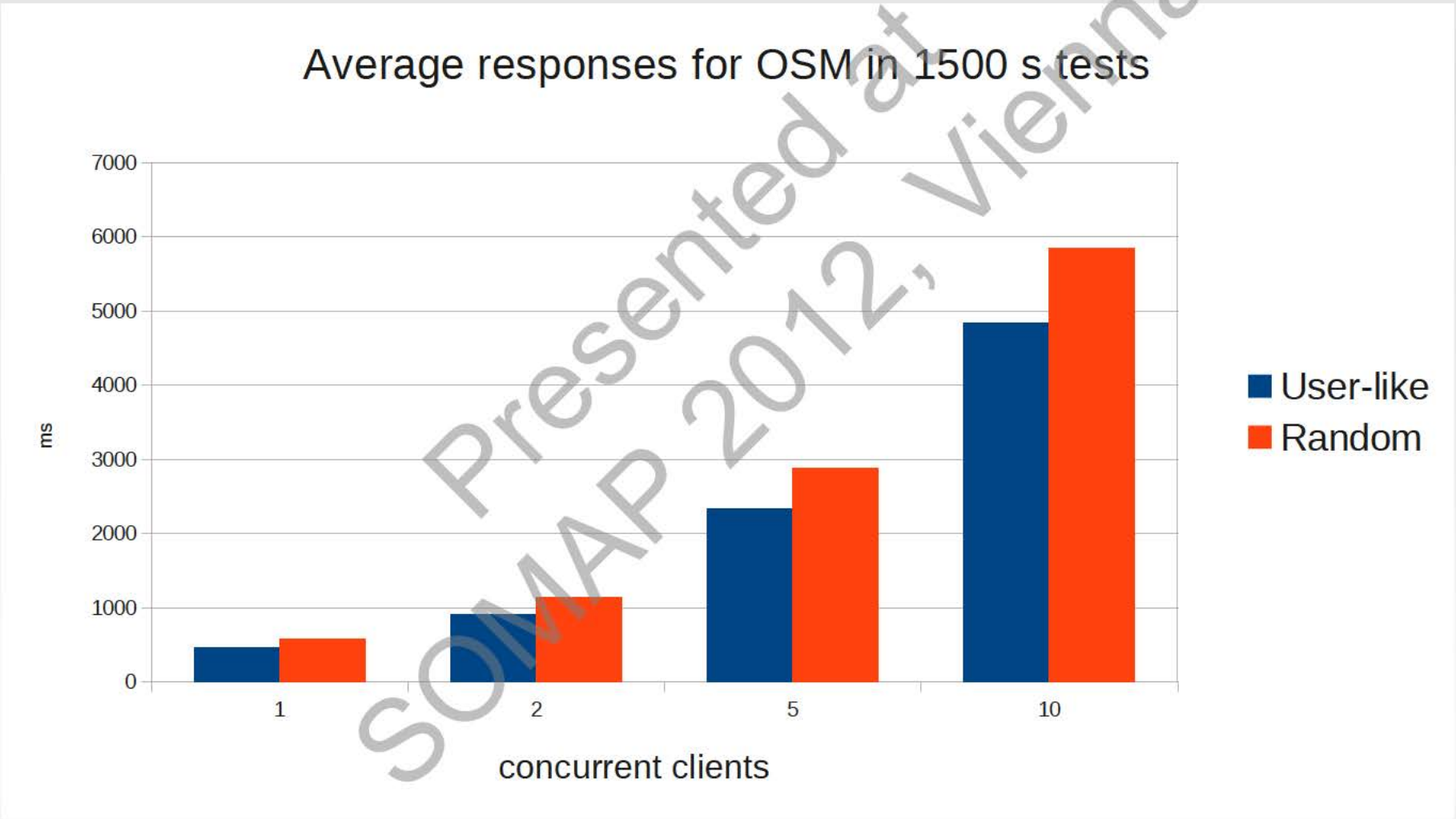
Results for 1500s for OSM



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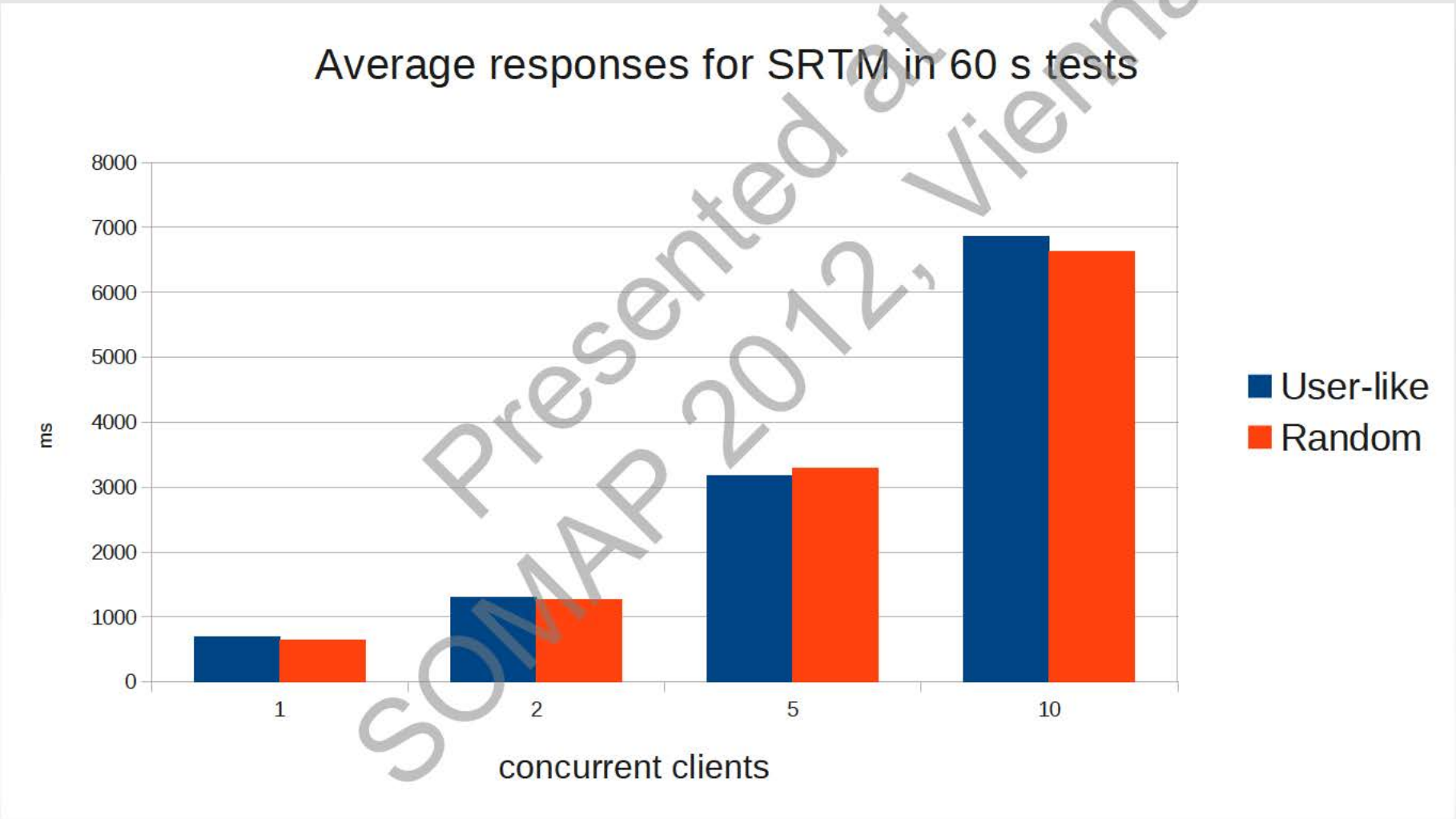
Results for 60s for SRTM



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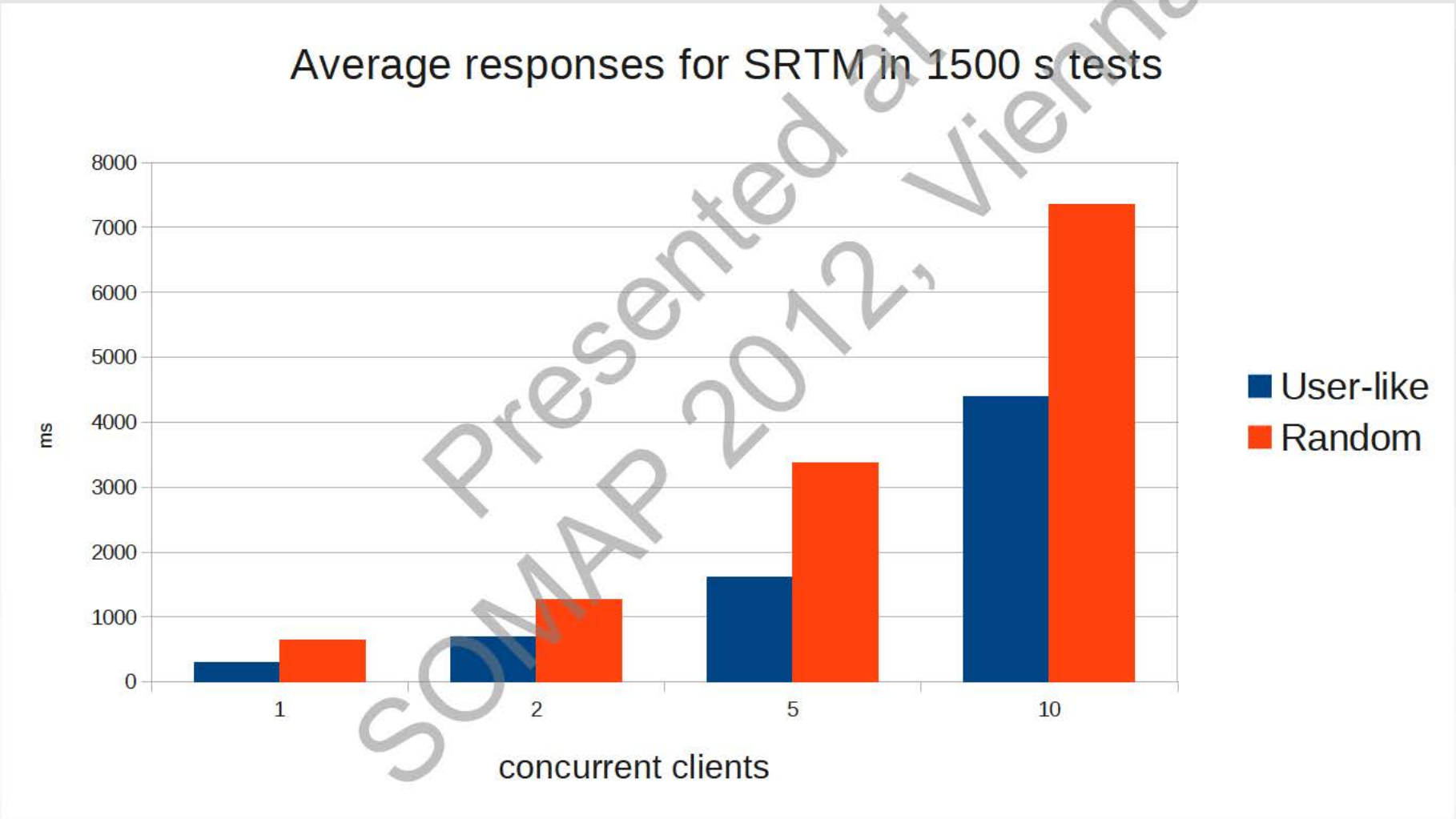
Results for 1500s for SRTM



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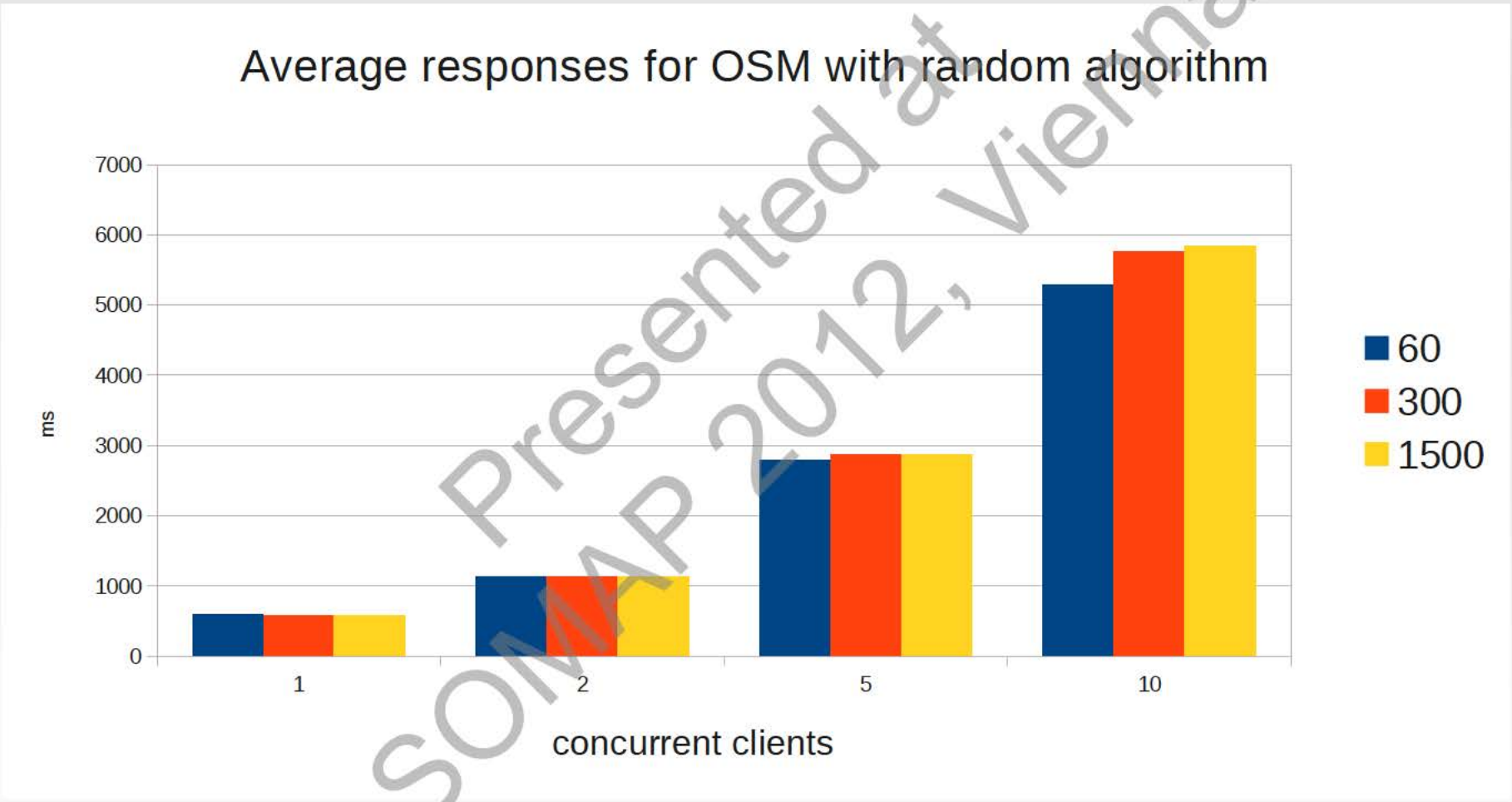
Responses for OSM - Random



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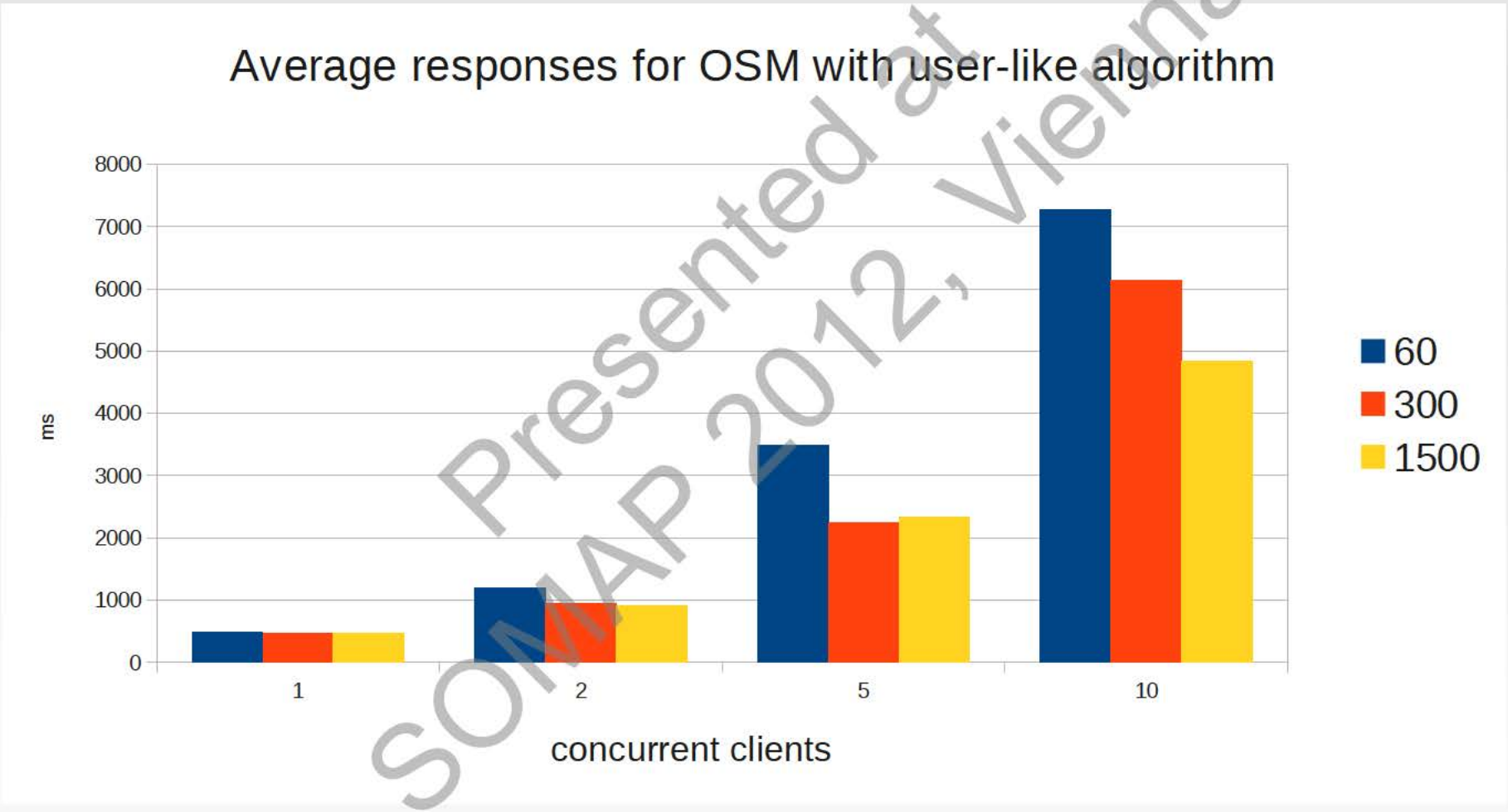
Responses for OSM – User-like



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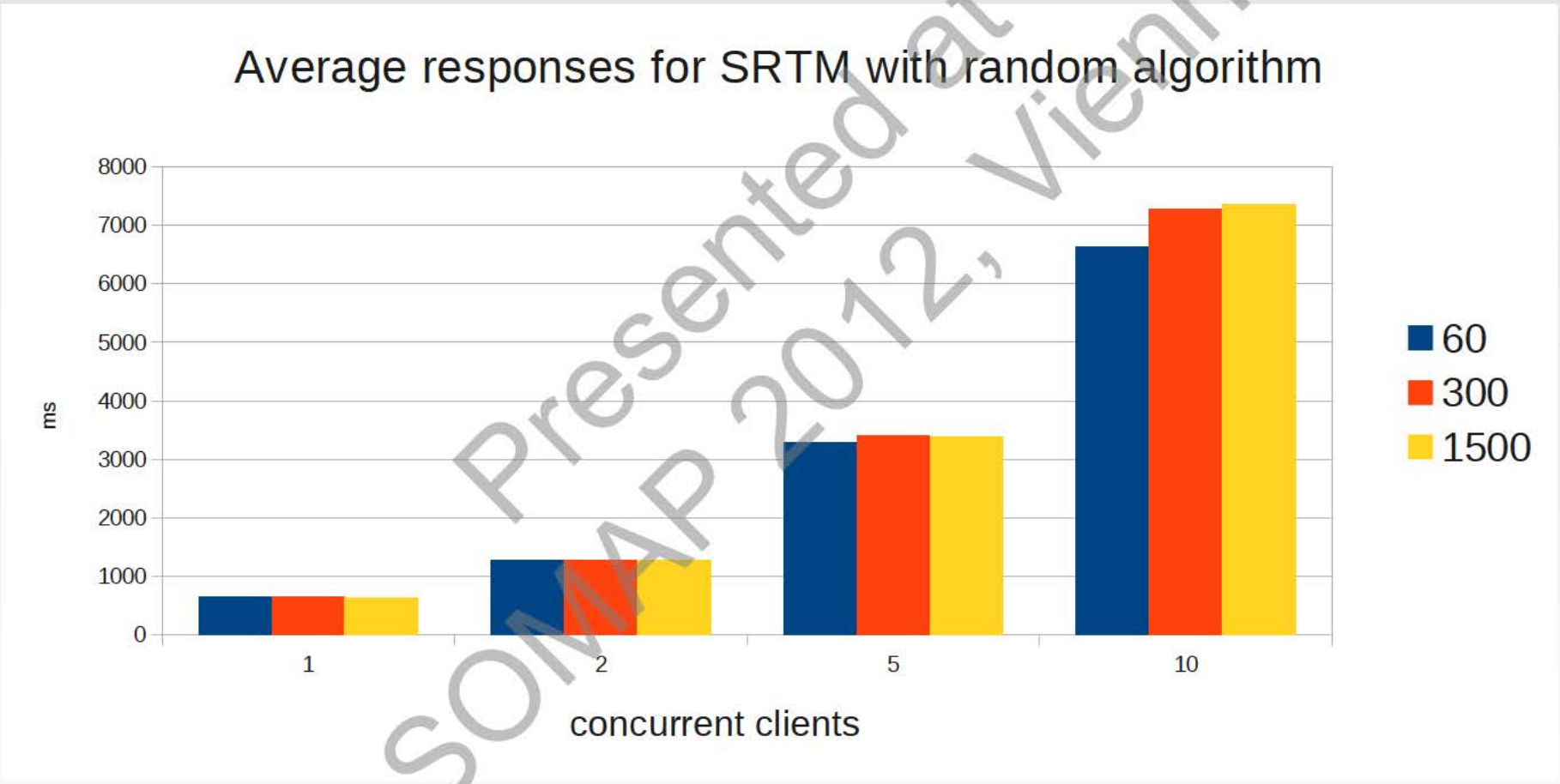
Responses for SRTM – Random



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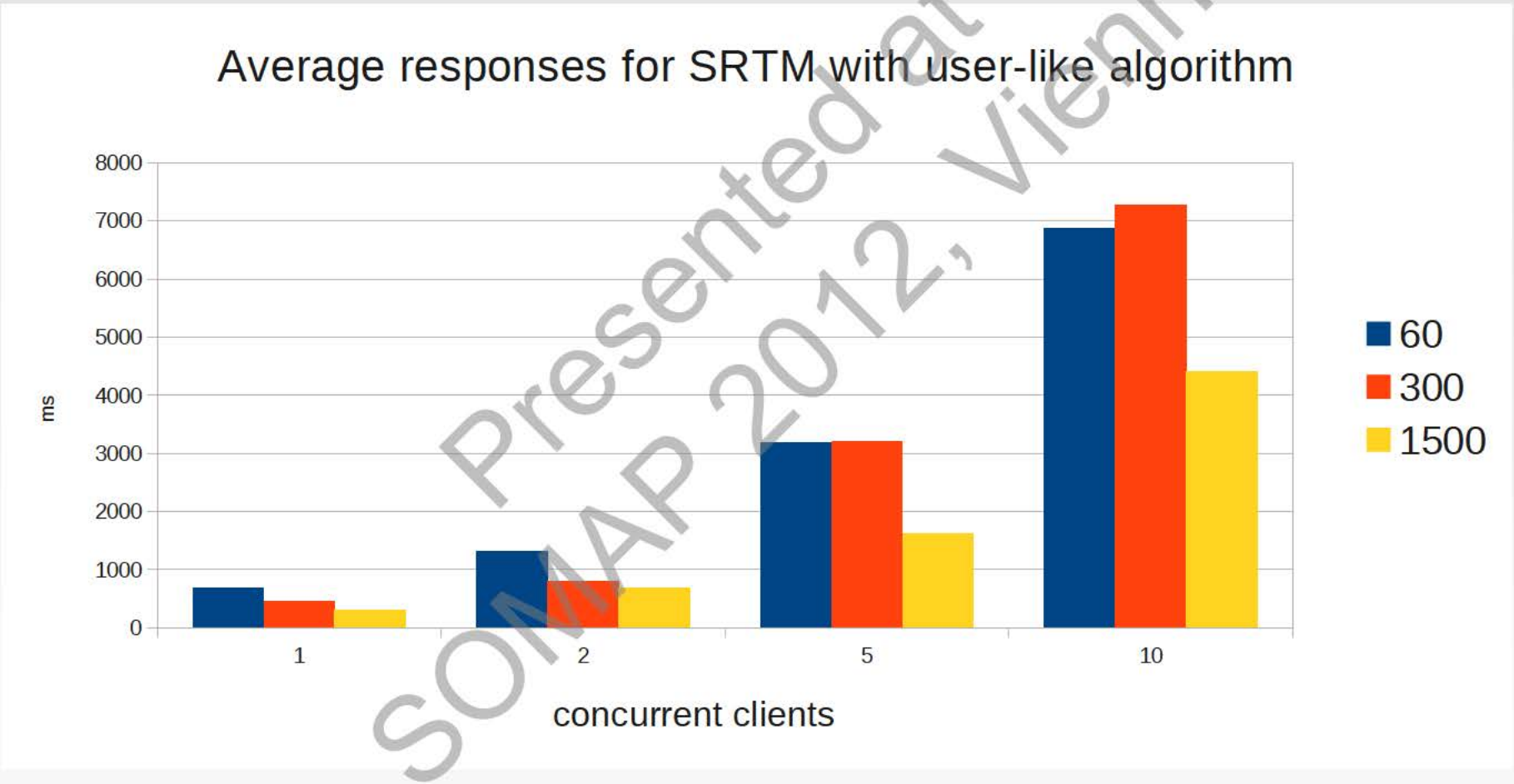
Responses for SRTM – User-like



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Conclusions

- Implemented algorithm that simulates user-like behaviour gives average time response significantly smaller than the random testing for long time tests.
- Random testing gives stable results for all durations of the tests.
- Use Random algorithm until the new algorithm simulating user behaviour is tested.

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New algorithm simulating user behaviour

- Developed in September
- Now under testing
- Based on user behaviour **patterns** extracted from **logs of real map servers**
- Is going to be presented at **GIS Ostrava 2012**
  - 21-23, January 2012
  - http://gis.vsb.cz/gisostrava/

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Thank you for your attention

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