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EXI for Web of Things

Cutting edge aspects…

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EXI for the Open Web Plattform

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- XML 
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Reasoning

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- EXI achieves *generality*, *flexibility*, and *performance*,

  by unifying concepts from formal language theory and information theory into a single, relatively simple algorithm.

- The algorithm uses grammars to determine what is likely to occur at any given point

- The generalized algorithm works for any language that can be described by a grammar

- Moreover, EXI
  - achieves very efficient encodings
  - uses a small set of datatype representations
  - processors are simple and can be implemented on devices with limited capacity

Why not use *one* efficient serialization format across all Web technologies?

EXI for JSON

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Why would people want to use EXI for JSON

- very efficient representation compared to textual JSON
- more compact than other binary JSON formats
- EXI is proven technology in the XML stack
- (Re-)Use algorithms & datatypes for XML and JSON
  - One well-tested code base
  - reduce code footprint

EXI for JSON: https://www.w3.org/TR/exi-for-json/

EXI for JSON
Example Transformation

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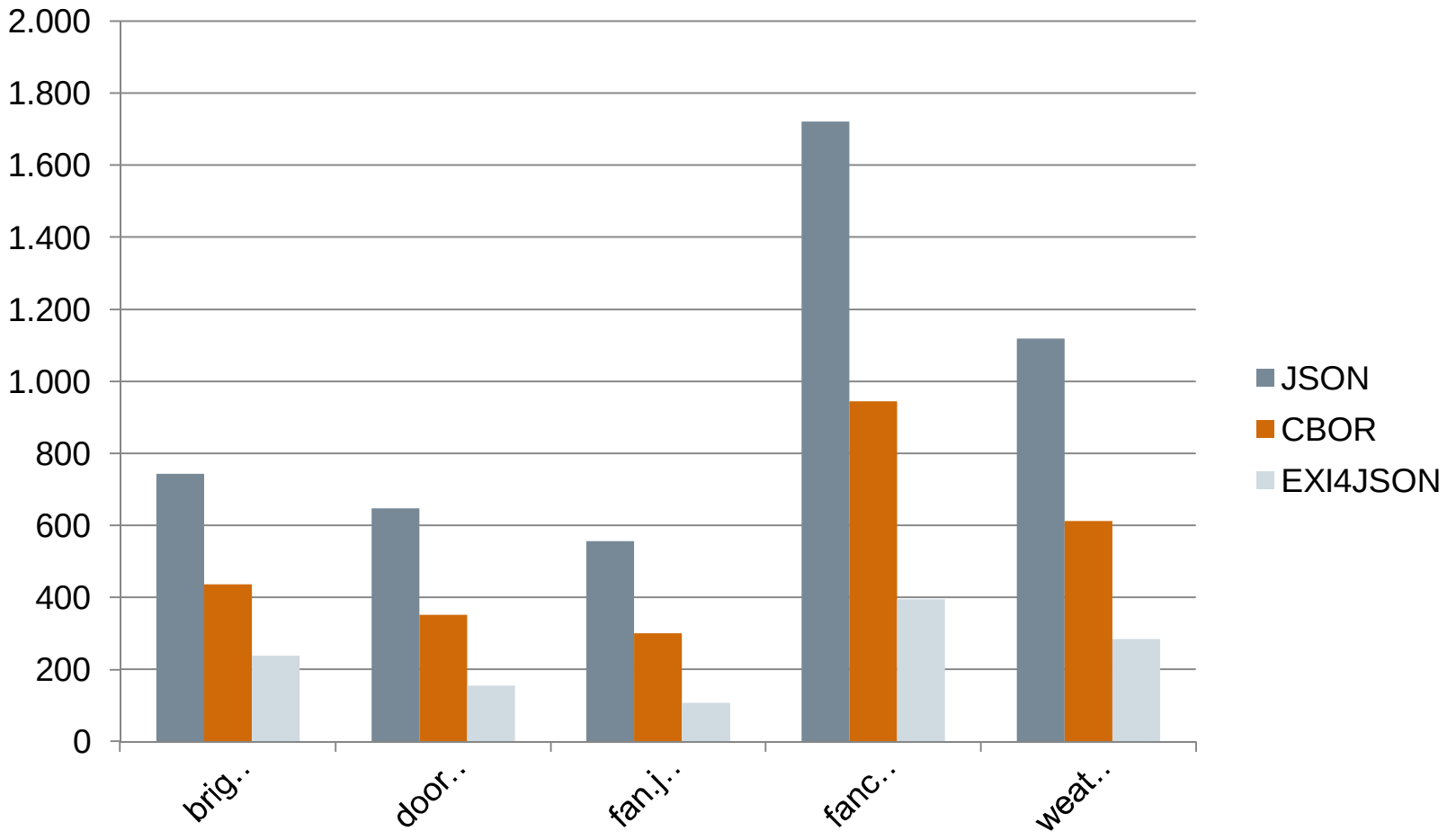
JSON

```
{
 "number": 123,
 "string": "s1"
}
```

EXI for JSON

```
<map>
 <number key="number">123</number>
 <string key="string">s1</string>
</map>
```

EXI for JSON
JSON-LD Thing Description - Measurements



Samples taken from https://github.com/w3c/wot/tree/master/TF-TD/TD%20Samples

Extended String

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EXI Strings – Status quo

- EXI uses a string table to assign "compact identifiers" to string values
- String values in the string table are represented using the associated compact identifier rather than encoding the entire "string literal“
- The value string table is initially empty

Extension - Shared Strings

- Pre-populate *known* strings e.g., JSON-LD context or JSON Schema
- Grammar strings

Extension - Split String

- Splitting strings might increase likelihood of string table hits
  e.g, RDFa

```
<rdf:Description
   rdf:about="http://www.recshop.fake/cd/Empire Burlesque">
  <cd:artist rdf:resource="http://www.recshop.fake/cd/dylan" />
  ...
  ...
</rdf:Description>
```

EXI – Stay tuned

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Web: https://www.w3.org/XML/EXI/

Mailinglist: public-exi@w3.org

EXI Playground:

- http://exificient.github.io/javascript/demo/
- EXI for JSON
  http://exificient.github.io/javascript/demo/processJSON.html
- EXI for JSON (with shared strings)
  http://exificient.github.io/javascript/demo/processJSON.html?SharedStrings=true

Thank you!

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Any questions / comments?

Daniel Peintner

Siemens Corporate Technology
RTC NEC EMB-DE

Daniel.Peintner.ext@siemens.com