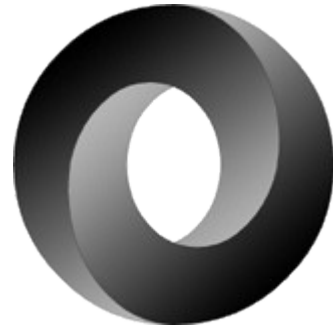


NoSQL as Not Only SQL

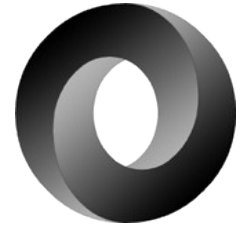


PostgreSQL

Backend Berlin
Dezember 2015
Stefanie Janine Stölting
[@sjstoelting](#)



JSON Datatypes



JSON

Available since 9.2

BSON

Available as extension on GitHub since 2013

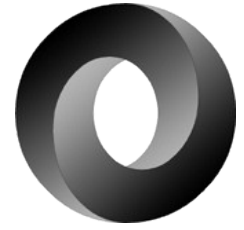
JSONB

Available since 9.4

Compressed JSON



ACID



Atomicity, Consistency, Isolation, Durability is a set of properties that guarantee that database transactions are processed reliably. ¹

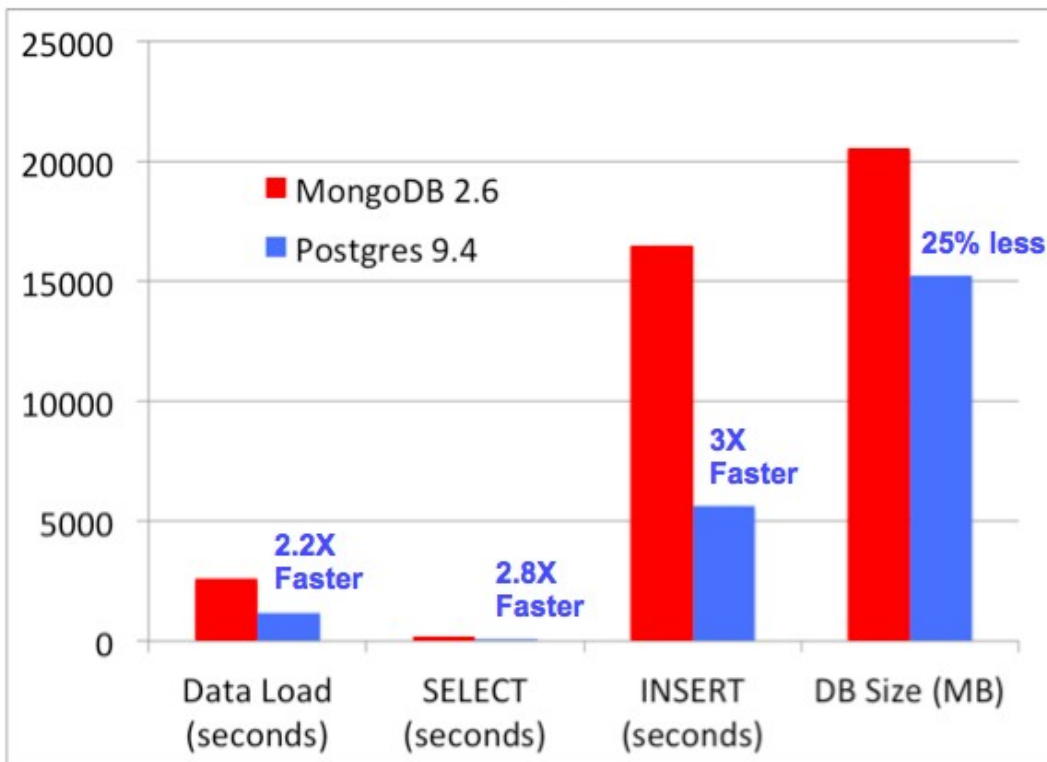
¹ See <https://en.wikipedia.org/wiki/ACID>



Performance



MongoDB 2.6 vs PostgreSQL 9.4 Performance



Test done by
[EnterpriseDB](#),
see the [article](#) by
[Marc Linster](#)



JSON Functions



`row_to_json({row})`

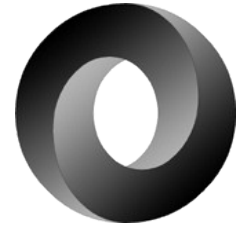
Returns the row as JSON

`array_to_json({array})`

Returns the array as JSON



JSON Operators



Array element

->{int}

Array element by name

->{text}

Object element

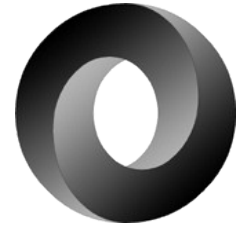
->> {text}

Value at path

#> {text}



Index on JSON



Index JSONB content for faster access

GIN index overall

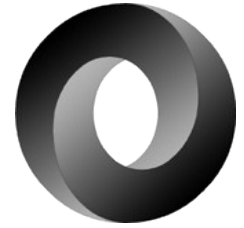
```
CREATE INDEX idx_1 ON jsonb.actor USING  
GIN (jsondata);
```

Even unique B-Tree indexes are possible

```
CREATE UNIQUE INDEX actor_id_2 ON  
jsonb.actor((CAST(jsondata → 'actor_id'::int)));
```



New JSON functions



With the next version, 9.5, there will be new functions available, for example:

`jsonb_pretty`

`jsonb_set`

If you can't wait using them, you might be interested in the [jsonb_x](#) extension available at PGXN



Data sources



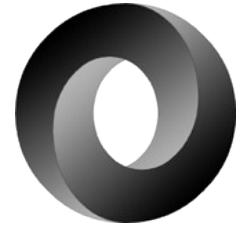
The Chinook database is available at chinookdatabase.codeplex.com

Amazon book reviews of 1998 are available at

examples.citusdata.com/customer_reviews_nested_1998.json.gz



CTE



Common Table Expressions will be used in examples

Example:

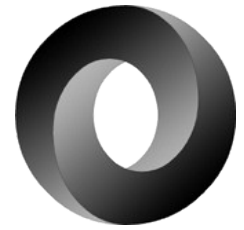
```
WITH RECURSIVE t(n) AS (  
    VALUES (1)  
    UNION ALL  
    SELECT n+1 FROM t WHERE n < 100  
)  
SELECT sum(n), min(n), max(n) FROM t;
```

Result:

	sum bigint	min integer	max integer
1	5050	1	100



Live Examples



Let's see, how it does work.



User Group / Conferences

PostgreSQL User Group Berlin

PGDay FOSDEM

Brussels, January 29 2016

FOSDEM Dev Room

Brussels, January 31 2016



Link List

Extended JSONB functions for 9.5

Extended JSONB functions as extension for 9.4
from [PGXN \(jsonbx\)](#)

Slide and source on Github:

<https://github.com/sjstoelting/talks>



JSON by the other Elephant



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