Running PostgreSQL in enterprise level telco systems

Ilya Kosmodemiansky

ik@intelotec.ru
hydrobiont@gmail.com

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What is mediation

• Collecting CDRs from network
• Processing CDRs (logic is complicated)
• Transportation to billing system
What is mediation
Needs and expectations for mediation monitoring

- Reports from each stage/chain
  - CDR amount
  - Processing speed
  - Chain integrity
  - Alerts
- Reports to GUI
- Early warning
OpenNMS

- Ready to go
- Highly customizable via extensions
- PostgreSQL-based ;-)

- for LAN, not for cellular
InMetrix

- Plugin set for OpenNMS
- plpgsql application for data processing
Why PostgreSQL?

- Failsafe & consistency = database needed
- Open Source
- Simple
- Oracle-fashion procedures
So let's persuade operations department's DBAs that we are right
GSM-provider’s DBAs

• Know how to cook Oracle Database
• Like Oracle
• Count money
• Ask awkward questions
Awkward questions

- Is there smth like RMAN in Postgres?
- How to tune without wait events?
- What about table partitioning?
- What about data compression?
- Smth like ASM?
- ...

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Don’t argue about obvious things

- There is no RMAN, OWI, ASM
- Hardly any partitioning
- Compression: external only, if any
Don’t argue about obvious things

• There is no RMAN, OWI, ASM
• Hardly any partitioning
• Compression: external only, if any

• Come to discuss when recession strikes;-)
Necessary and sufficient

- Hot-standby
- Emulated table partitioning by date
- Compression - struggling with zfs?
Nice features

- hstore
- CTE - recursive queries
hstore

• for various non relational data
• hstore $\rightarrow$ json $\rightarrow$ java $\rightarrow$ GUI
CREATE FUNCTION public.hs_2json(hs hstore) RETURNS text
  AS $$
declare
  rv text;
  r record;
  count integer;
begin
  count:=0;
  rv:='';
  for r in (select key, val from each(hs) as h(key, val)) loop
    if rv<>'' then
      rv:=rv||',';
    end if;
    rv:=rv || '"' || r.key || '":' ||
    regexp_replace(regexp_replace(r.val,$$\$$,$$\\$$,'g'),'"', $$"$$,'g') || '"
    count:=count+1;
  end loop;
  return '{'||rv||'}';
end;
$$;
LANGUAGE plpgsql IMMUTABLE;
hstore

- for various non relational data
- hstore → json → java → GUI

- Sometimes a bit LISPy, but not a problem ;-)
Really needed

- PRAGMA AUTONOMOUS_TRANSACTION
- Skip locked
thanks!

- Anton Barkov
- Alexey Bekasov
- Alexander Kulikov
- Denis Nikonov
- Ivan Podgorny

- Ivan Frolkov - for json ideas