

High Availability - Simple People, People, People.

Piet de Visser

The Simple Oracle DBA



Commit Your **ORACLE** Knowledge

Favorite Quotes: "The Limitation shows the master" (Goethe), "Simplicity is not a luxury, it is a necessity. Unfortunately, 'Complex' solutions sell better. (EW Dijkstra).

Agenda

(approx 30 minutes)

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SOLUTIONS THAT MATTER

History

Knowledge

Procedures

Excercise

More to High-Availbility

10 min Discussion

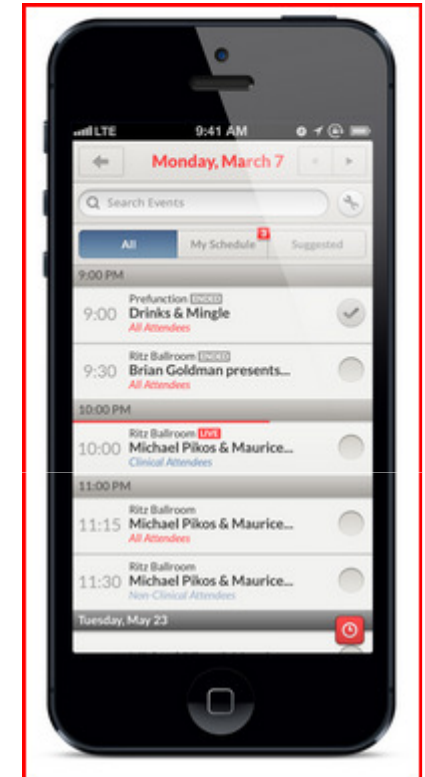
(Easy)

(Written!)

(Training, test)

(but...)

(Do Challenge!)



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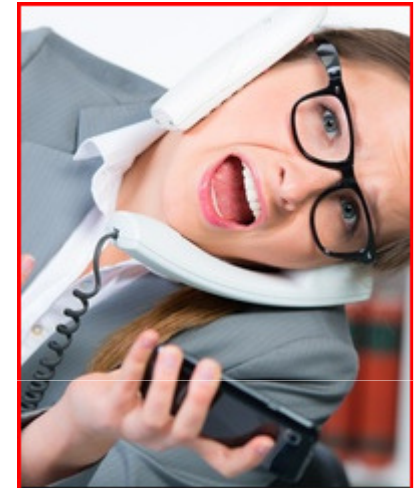
Agenda. Why, what, how, comparisons.
10+ slides, 2min/slide.

History: why this topic ... Dev-Ops !

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SOLUTIONS THAT MATTER

- **Several large organizations, IT mess:**
 - (Out-)serviced: **Chaos**
 - Scrum-teams: **more Chaos**
 - Operations: **Suffer...**
- **Management: want RCA**
 - Helpdesk: **“We follow rulebook”**
 - Service desk(s): **“Situation not described”**
 - Architect (?): **“Need to Study”**
- **Analogy: Ambulance, Sailing-team, Music-band!**



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Large org: IT is chaotic. Management want RCA, “Root Cause Analysis”.
Note: I am part of a “IT Repsonse Team, we go listen and help...”

Why do we have Outages; What is wrong?

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SOLUTIONS THAT MATTER

- We have latest technology
 - 64-core, 124GB, InfiniBand, Fastest SAN, Replicated
 - Big-IP and redundant connections
 - We have Clusters, Cloud, ... even use iPads...
- We use latest hypes
 - SOA, Agile, Scrum, Big(ger)-data, In-memory...
 - Everything Spec-ed and QA tested.
- We have outsourced ...
 - To most expensive vendor; Must be Good ???



www.carstuckgirls.com



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The organization is trying very hard to do everything "right", and is paying top prices! Must be good...
No matter who pushed, some things wouldn't move (image-google: luxury car stuck in sand)

Ask the ppl...

- **Helpdesk:**
 - Cases “ not in book”; Escalate!
- **Service-desk**
 - Too much change, system not stable.
- **Scrum-teams:**
 - Organization not flexible enough
- **Architect:**
 - Ppl don’t understand, ppl don’t obey.



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Depends on who you ask... But three factors emerge: Knowledge, Procedure, Training.

We found 3 keys..

(People !)

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SOLUTIONS THAT MATTER

- **Knowledge**
- **Procedures**
- **Exercise, Training.**
- **And it doesn't matter ...**
 - How much hardware / resources...**
 - How you in- / out- / cloud- source**
 - whatever EXA- or EX-aaS model you use...**



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They had already tried every technical hype in the internet... but it came down to people-skills: how can we

Knowledge : Study, tinker.

SOLUTIONS THAT MATTER

- Knowledge
 - Of Methods
 - Of Requirements
 - Of systems
 - Of tools...

- Generally: Knowledge = OK
 - Good DevOps are Curious
 - “Proud Professionals”
 - Knowledge = show-off factor
 - [hmmm...] HR will ask for “OCP”



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Knowledge is the easiest to cover... and often the only focus.
But just “knowing” doesn’t get the job done.

Procedures: Boring!

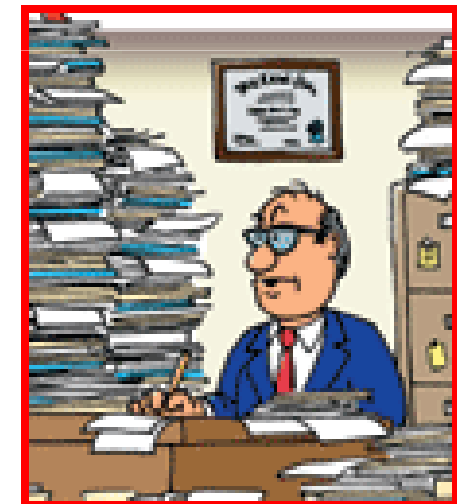
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SOLUTIONS THAT MATTER

- **Procedures: Important**
 - What to do
 - How to do it
 - **Always, Consistent, Repeatable.**

- **Generally Covered in “large” organizations**
 - Managers + Beancounters like this.
 - Set of binders on shelf (ITIL)
 - Nobody ever read...
 - (except maybe auditor..)

- **Like or not, Procedures are Important.**



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Like it or not: Some “Discipline” is important to remain consistent.

Exercise: Sweat!

SOLUTIONS THAT MATTER

- **Exercise IS needed**
 - Know how things **_really_** work
 - Learn from Mistakes (before impact)
 - Gain Routine, get Confident
- **Least Covered aspect**
 - No time, No budget, No incentive.
- **Testing is the ideal exercise,**
 - “Operations” rarely tested (DR testing?)
 - Testing should be on “relevant” data or systems.



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Testing, as a profession, is focussed on “functional requirements” , the so-called non-functional is often neglected. But DevOps need exercise too.. (Proud dad: my kids are junior firefighters)

More Analogies...

SOLUTIONS THAT MATTER

- **Ambulance: X6 ?**

- Staff, Dr, Paramedics
- Follow defined steps
- Practice often!

(knowledge)
(procedures)
(exercise)



- **Music: playing band ?**

- Know how to play
- Agree on Repertoire
- Practice, practice, practice

(knowl..)
(proc..)
(exerc..)



- **IT, DevOps often just: toys + knowledge**



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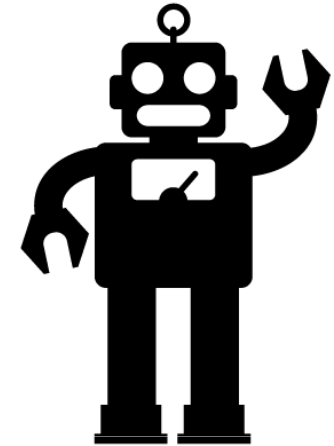
Good Equipment, infrastructure, (CLOUD) is only half the job.. If you havnt covered the three ppl-items.
(here is your homework)

More to High Availability....

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SOLUTIONS THAT MATTER

- **Simplicity**
 - Simple system don't break
 - Simple system easier to understand + fix
- **Automate as much as possible**
 - Failovers... (clusterware, and/or host in cloud)
 - Deployments (Puppet, Chef), avoid human errors..
- **Error handling**
 - System should survive outages.
 - (notably in cloud...)



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Notably Serge Rosman said I was All Wrong. People are trouble, "I don't like people around my systems !"

But In the end: People !

- **Simplicity... Yes**
- **Automation... Yes**
- **Errorhandling ... Yes**

- **But it is your People who “make” this.**

- **Check their Knowledge**
- **Write them Procedures (some)**
- **Make them Exercise (Lots !)**

- **“Omne Trium Perfectum” - All good things come in 3...**



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Your technology must be (approx) right, but your ppl are more important !
And they need each of the three legs to stand on. (Tripod = Stable)

@devops_borat (on twitter)



DevOps Borat @DEVOPS_BORAT

You can not able spell business without BS.

Expand



DevOps Borat @DEVOPS_BORAT

Is no I in backup.

Expand



DevOps Borat @DEVOPS_BORAT

You can not able have unlimit scalability without unlimit outage.

Expand



Don't Take my word for it...

2/2

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SOLUTIONS THAT MATTER

[SimpleOracleDb . Blogspot . com](http://SimpleOracleDb.blogspot.com) (my ramblings)

And do some investigation yourself ...

Homework: Check your team !

- knowledge
- procedures
- Exercise

And keep it Simple!

Goethe: Limitation shows the Master.



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Majority of times, I have been WRONG.
So go see for yourself – but don't complicate life.

“In der Beschränkung zeigt sich der Meister”

Quick Q & A (3 min ;-)

3 .. 2 .. 1 .. Zero

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SOLUTIONS THAT MATTER

- Questions ?
- Reactions ?
- Experiences from the audience ?



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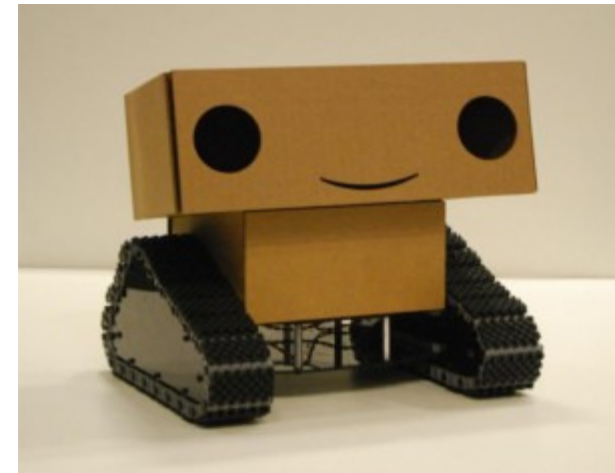
Question and Answer time. Discussion welcome
Teach me something: Tell me where you do NOT AGREE.

(what about that Razor?)

Various DBA roles: the OPERATOR

SOLUTIONS THAT MATTER

- **Start / stop the systems**
- **Process “tickets”**
 - (after review + approval...)
- **Run pre-defined tasks, Scripts**
- **Watch green lights.**
- **Fill in forms.**
- **Report anything out of order...**
- **Implement simple fixes.**



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The simplest role ?
With “outsourcing” deals, there is a surprising demand for this work, but mostly offshore.

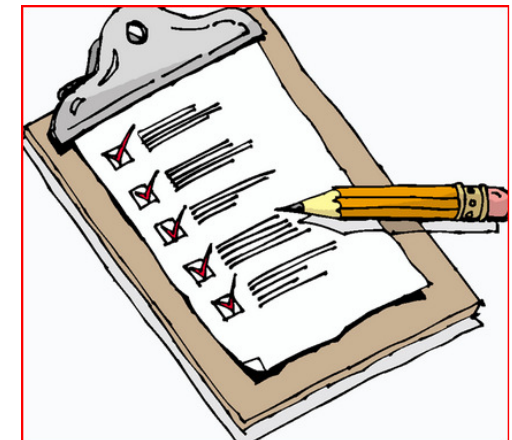
DBA roles: the Technical DBA

SOLUTIONS THAT MATTER

- Install software
- Run Patches
- Create scripts
- Create documentation

- Process “tickets”
 - (after review + approval...)
 - Fill in forms...

- Investigate anything out of order...
- Implement fixes (with / without paperwork)



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The most traditional DBA role. A good Techie. Compare to good “operator” or skilled plumber.

DBA roles: Development - DBA

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SOLUTIONS THAT MATTER

- **Facilitate DEvelopment.**
 - Often an ex-OPS-DBA.
- **Facilitate Testing**
 - make test-copies, test-scripts.
- **Some code review**
 - Check correctness,
 - check security.
 - Check standards.
- **Keywords: Assist DEV teams, help with lab-testing.**



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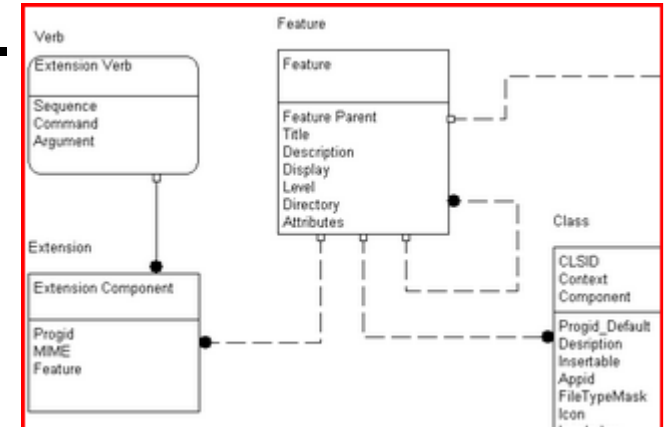
DBA dispatched into a DEV team. Will loose sight of "operations" and standards...

DBA roles: Developer - DBA

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SOLUTIONS THAT MATTER

- Important, ACTIVE member of DEV team.
- Create software.
 - Create Data models (ERD!)
 - Programs, algorithms.
 - Code: Mostly PL/SQL and SQL.
 - Sometimes other tools / languages.



- Work according to SPEC!
 - Requires Creativity And Discipline.
- Code Reviews
 - Standards, security.



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Development. Focus on requirements, correctness, discipline. Deliverables!

DBA roles: Tester- DBA

- **Run + Analyze complex tests.**
 - Opponent of developers!
- **Integration tests**
 - Does it all work together.
- **Soak-test**
 - Can it run for weeks...
- **Scalability tests**
 - Efficiency
 - Concurrency.



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Database of the the best place to spot (complex) problems. Hence DBA developed into tester.

DBA roles: Architect [- DBA]

SOLUTIONS THAT MATTER

- **Devise + Implement Complex Solutions.**
- **Must understand high-level requirements**
 - What is really needed...
- **Must understand “technology”**
 - Many options...
- **Vendor Management...**
 - Sales will bully...
- **Communicator!**



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This may no longer be called a DBA...
Tip: make sure the Architect does some DBA work from time to time.

DBA roles: Pre-Sales [- DBA]

SOLUTIONS THAT MATTER

- **Attached to Sales-organization**
 - Rewarded by sale...
- **Must look slightly geeky**
 - (Pretend to be) helpful techie.
- **Ability to ridicule existing systems + ppl**
- **Promise the world**
 - And not blink an eye
- **Run like hell..**



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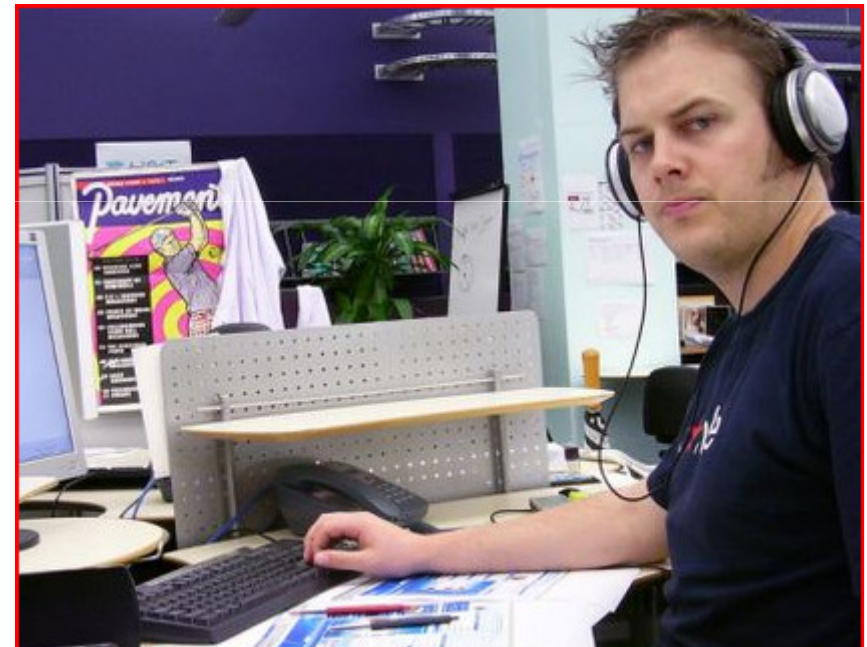


The really good ones end up at Oracle.

How to Spot a good DBA....

SOLUTIONS THAT MATTER

- **Understands responsibilities:**
 - Continuity, stability, keep data safe, secure.
- **Understand Concepts:**
 - 3NF, PKs, ACID, 12Rules.
 - Backup/recovery. Testing.
- **Knows Technology (OCP ?)...**
DB2, Oracle, MSSQL, mySQL...
- **Adequate social skills.**



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The multi-db dba never really took off.

How to Spot a better DBA....

SOLUTIONS THAT MATTER

- **Experience:**
 - OPS / DEV / Users (all three!)
- **Know when use/avoid tools**
 - Sql*Plus / OEM / TOAD, scripting.
- **Can Educate others**
 - Methods, Tools,
 - Concepts.
- **Sufficient social skills.**



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Can he explain it to colleagues

How to Spot a really Good DBA....

SOLUTIONS THAT MATTER

- Understands bigger picture.
- Maintains Technical knowledge + Skill.
- Give meaningful advice (knowledge + experience)

- Design Complex Solutions
- Teamwork
- Avoid hypes/sales.

- Reduce Ego.
- Excellent social skills.
- Know how to “Serve”



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Can she explain IT to the business...

Manage the DBA....

- Define the Role.
- Ensure all three aspects
 - Knowledge (study)
 - Procedures (write)
 - Training (exercise)
- Limit the Adhoc Activites.
- Reward...



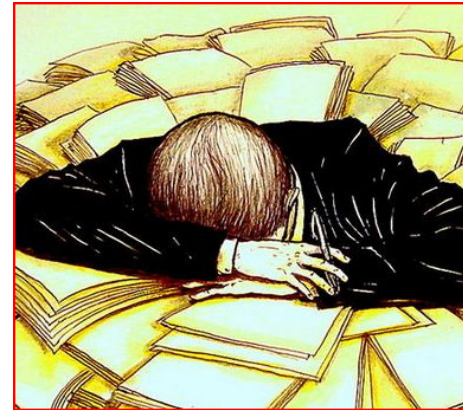
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A good DBA team is like an army-platoon. Skilled, Trained, Disciplined.

Risks for the DBA....

SOLUTIONS THAT MATTER

- **Irrelevancy**
 - Run backups, process tickets...
- **Rigidity**
 - Standardization. Bureaucracy.
- **Adhoc**
 - Hero-status, but no real work ever...
- **Change of system**
 - New technology – new DBA.



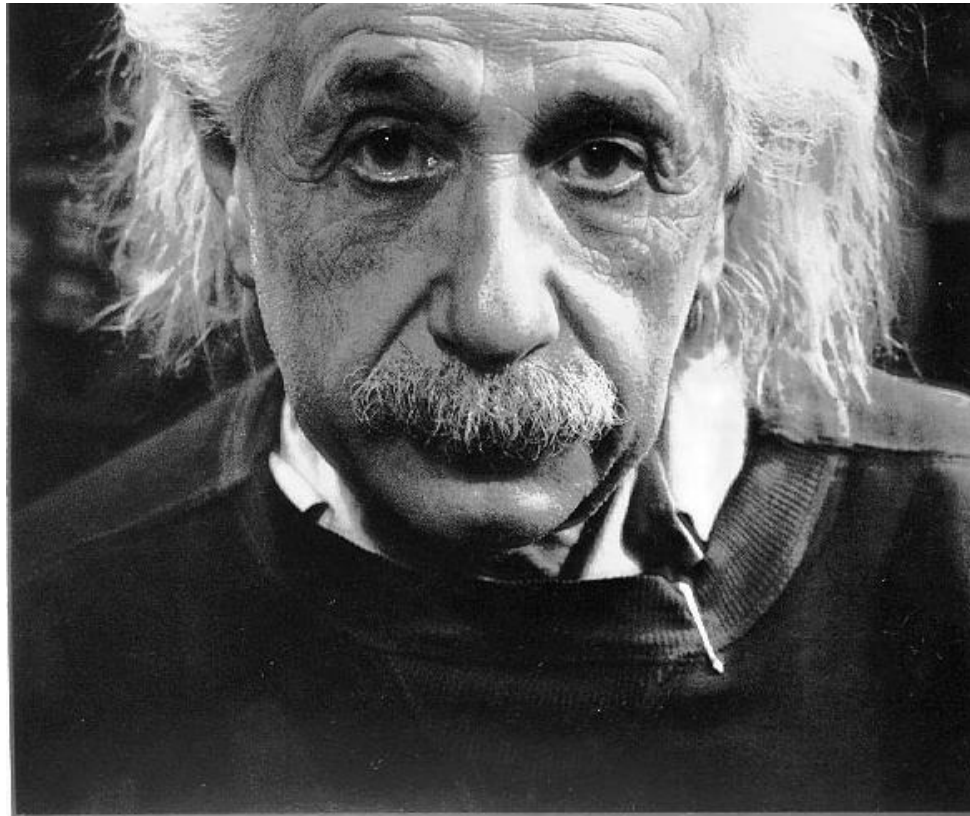
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A good DBA team is like an army-platoon. Skilled, Trained, Disciplined.

He got it ...

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SOLUTIONS THAT MATTER



“If you can't explain it simply, you don't understand it well enough”



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As Simple as Possible, but not too simple
Simplicity is a Requirement – but Complexity just sells better (EWD).

- Road + map are good metaphores.
- Occams Razor
 - Least possible ASSumptions
 - Simplest Solution.



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LoE: Layer of Expertise (© to Moans for this abbrev.?)
Simplicity at each Layer of Expertise is essential for a robust system.

Keep the clipart

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SOLUTIONS THAT MATTER

Alice looks at Devon with obvious disdain.

ALICE
I'm just cautious; it's the mark of a good scientist.

Devon moves toward the device in the center of the room.

DEVON
You call this contemptible science?

ALICE
I call it a teleportation device.

Devon gasps.

DEVON
Teleportation. A fantasy thought up by a disturbed mind.

Devon glances at the photo of Alice's father. Alice follows his gaze, and then she glares angrily at Devon.

Scripts



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User Managed: Flexible, but “You run it” Dataguard: covers almost any-outage, user-errors, machine-failure, site-disasters, and great for “other usages”