ORACLE

Do more with data
Episode 6: Tech trends reviewed

Featuring: **Dawar Ghaznavi –** Master Principal Solution Engineer, Oracle
Hosted by: **James Allerton-Austin -** Product Strategy Lead, Oracle

The **Do More With Data** Series

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data economy
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Tech Trends Reviewed

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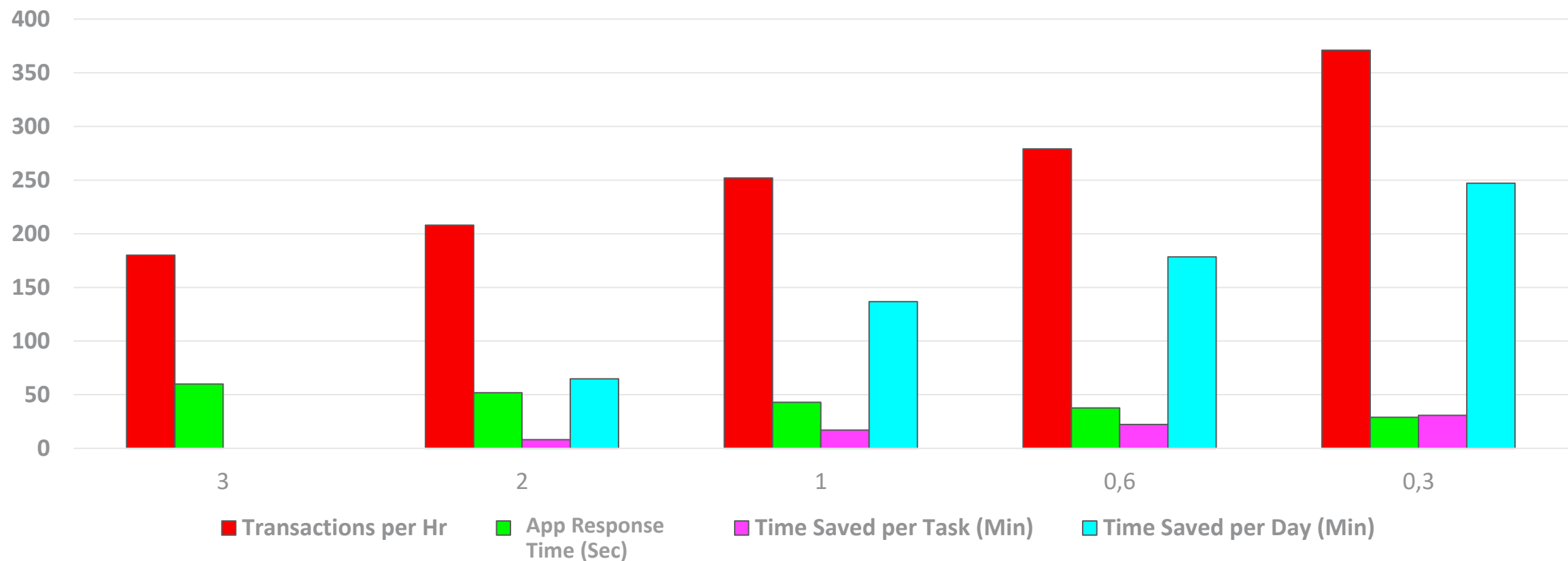**LinkedIn: linkedin.com/in/Dawar-ghaznavi/**

Data

Change
'Gale of Creative Destruction'

Joe Weinman

Economic Value of Sub-Second Response Time

Per IBM circa 1982 & validated recently with Neuroscience

Market Technology Trends

Both Real & Imagined

5G

IoT

AI/ML

Autonomous Technology

Blockchain

Edge Computing

Big Data

Data Centric

Digital Transformation

Cloud Adjacent

5G – Aspirations

Orders of Magnitude More Performance

- 5G performance vs 4G LTE

  - Up too 100x perf/faster

  - Avg increase ~ 10x

    - Movies download in secs vs mins

    - Max of 10Gbps vs 4G's 1Gbps

    - Enables mobile AR & VR

  - 1ms latency vs 10ms (1ms = 1000 μs)

  - 1M devices@Km^2 vs 4K @Km^2

5G – Current

Performance

- Better but not there yet
  - Latency only slightly better
  - Throughput ~ 2-3x more

Cost

- Much > investment
  - Billions to Trillions USD
- User devices as well
 ~ 20-25% > expensive

Infrastructure

- Extensive
  - Much different tech than 4G LTE
  - Millimeter vs Microwaves
    - Can't penetrate walls
  - 5G range ~ 300m vs 4G @ ~ 16Km
  - Means many > Antennas
    - 100s to 1000s more
    - Each with Fiber Optic connection

Note: 5G is not 5GHz WiFi

Critical 5G Problem – Performance Expectations

Root Cause: Applications Unprepared

- Bottleneck between application & database infrastructure
  - Most apps tied to database of some type
  - Most **Databases** can't deliver in a 5G world
   - 5G volumes, latencies, IOPS, throughput, or scalability
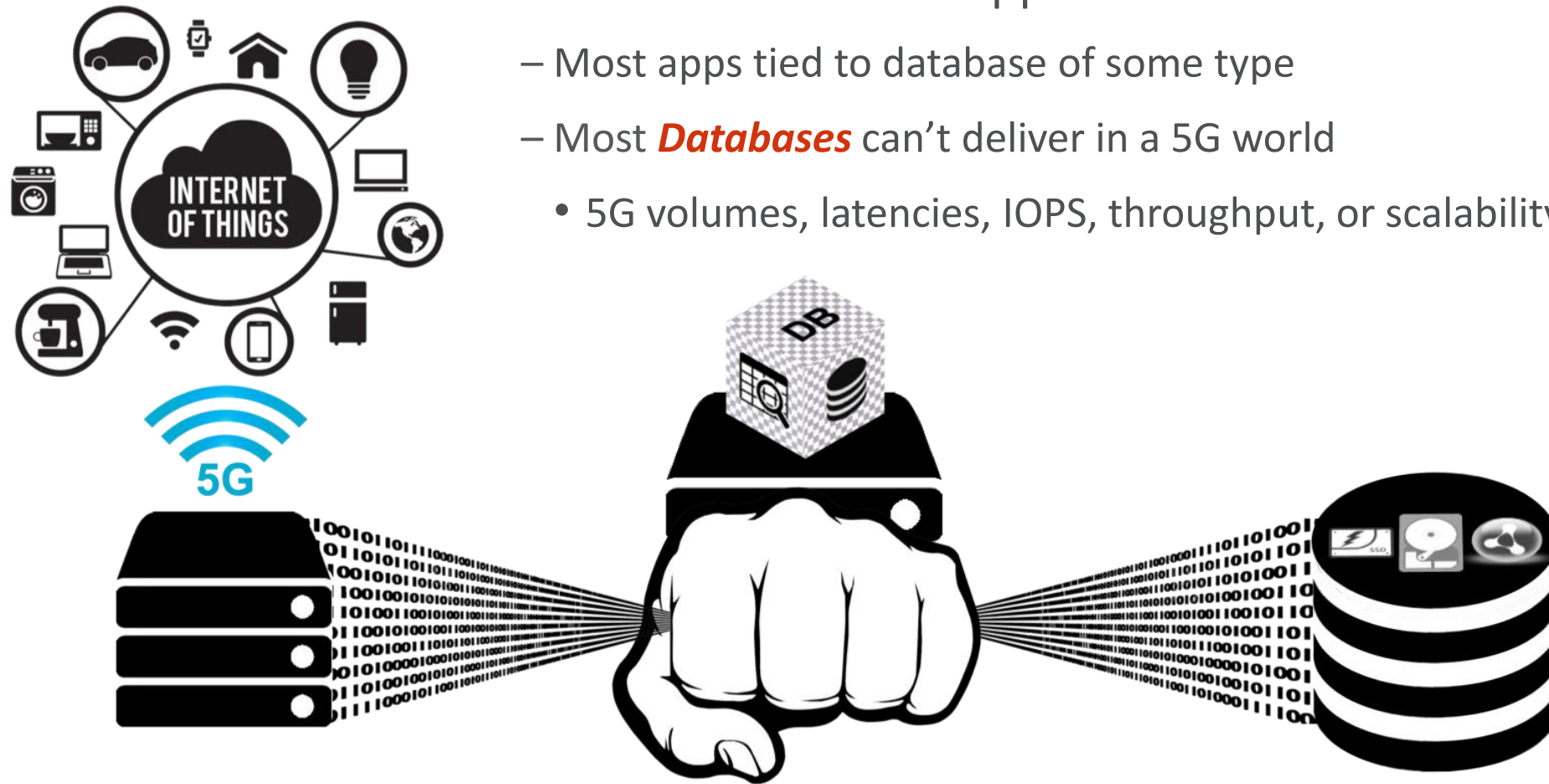
IoT – Hype vs. Current Reality

75.44 Billion IoT Devices by 2025 : *Per Statista*

79.4 Zettabytes (ZB) of Data by 2025: *Per IDC*

Rapid Growth

- Processing pushed down to devices
  - Smart appliances
  - Smart meters
  - Smart vehicles
  - Smart wearables
  - Smart CCTV cameras
  - Smart thermostats
  - Smart speakers
  - Smart TVs
  - Smart homes
  - Smart robots
  - Smart phones & apps
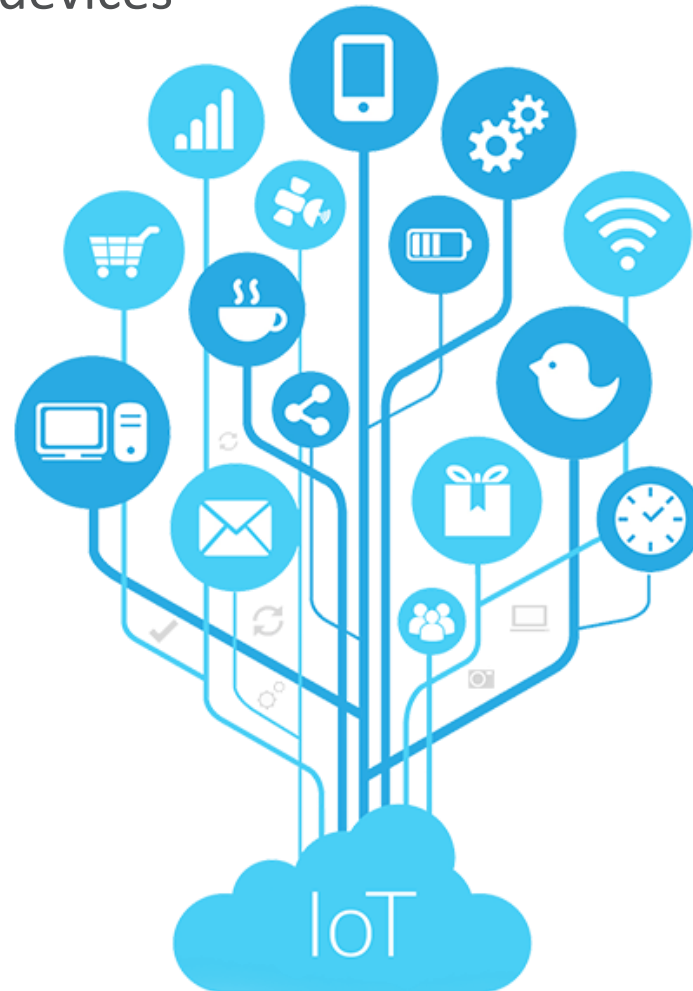
Current Reality

- Infrastructure is scattered
  - Frequently unreliable
  - Mobile networks get saturated
    - Interrupts data flow
  - Not enough edge/fog processing
  - No standardization yet
  - Many suppliers disappear
    - Leaving undependable devices
- Huge amounts of data
  - Requiring multiple databases
    - With multiple layers of analytics
    - Data movement between DBs

IoT Not Realizing Its Potential…Yet

Not even close

Current 4G LTE mobile networks limited/saturated

- 4K devices per Km^2

Potential here is billions to trillions of devices

5G rollout slowing IoT deployments

Inability to analyze IoT data in real time slowing rollout

84% of Industrial IoT stuck in pilot mode *per McKinsey survey*

- 28% more than 2 yrs

- Too many distinct data sources & databases

Demands too much manual labor from DBAs

DBAs have to become data scientists

5G/IoT Application Need The Right Data Strategy

Oracle DB, A Single Converged Database

Low Latency and Low Response Times

– Nothing lower, i.e. it's an Oracle advantage

– 16m IOPS / 19 µs (0.019ms) Response time

And so is

– Volume , Scale and Security

And don't forget flexibility

– Private cloud on-prem

– Managed cloud @ the customer

– Or in the Oracle public cloud

On-prem

Cloud @Customer

Public Cloud

Tech Trends in Conclusion
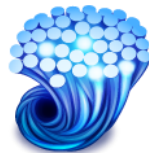
Remember these Tech Trends?

Data is at the Heart of Everything

5G

IoT

AI/ML

Autonomous Technology

Blockchain

Edge Computing

Big Data

Digital Transformation

Next Generation Data Strategy

Fit for Emerging Technology Trends

Q&A: Tech trends reviewed

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