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Risk Factors

Today's presentations contain forward-looking statements. All statements made that are not historical facts are subject to a number of risks and uncertainties, and actual results may differ materially. Please refer to our most recent Earnings Release and our most recent Form 10-Q or 10-K filing available on our website for more information on the risk factors that could cause actual results to differ.

OVER THE HORIZON: **THE MEGA-CENTER**

JUSTIN RATTNER | INTEL CTO



RISE OF THE CONSUMER DATACENTER

100 MILLION VIDEOS A DAY

You **Tube**TM Broadcast Yourself

YAHOO![®]

3 BILLION PAGE VIEWS A DAY

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Source: YouTube, comScore Networks

TIP OF THE ICEBERG



BIG CHANGES UNDERWAY

INSTALLED

STREAMED

LOCAL STORAGE

**DISTRIBUTED
STORAGE**

*INDIVIDUALLY
MANAGED*

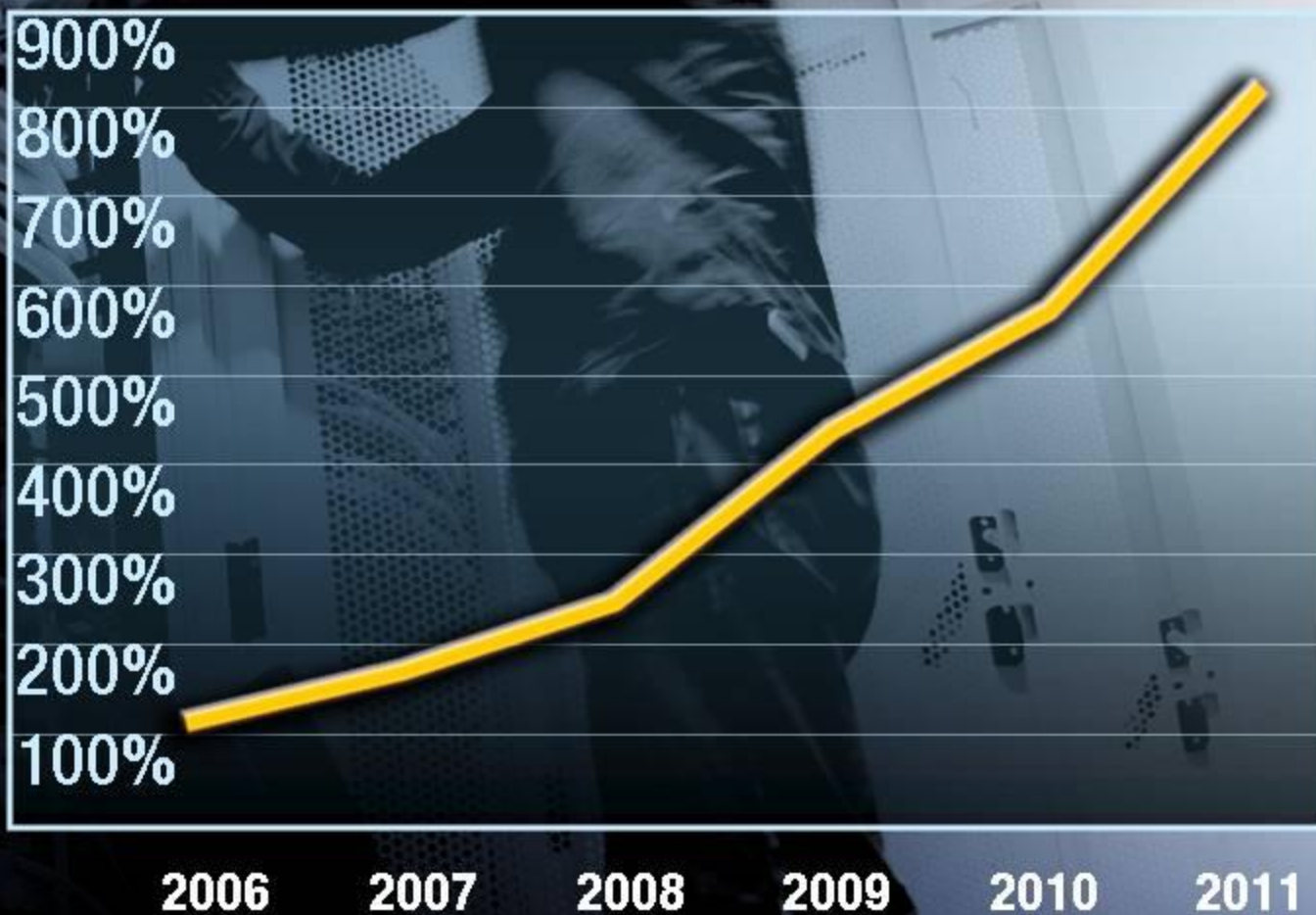
**CENTRALLY
MANAGED**

STATEFUL

STATELESS

MEETING THE DEMAND

RELATIVE INCREASE IN NUMBER OF SERVERS
FOR ONE DATACENTER



EVERYTHING **MATTERS**

Energy. Density. Storage. I/O. Security.
Reliability. Applications. Provisioning. Cost.



LUIZ BARROSO

GOOGLE DISTINGUISHED ENGINEER



SERVICES IN REAL-TIME

Details

The New York Times

Travel

NYTimes.com

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EXPLORER

Castles, Caves and Prized Pigs in South



Ads by Google

[Discount Food Thermometer](#)

Meat, Cooking, Candy, Oven, Fridge Chef Thermometers at AllHeartChefs
www.AllHeartChefs.com

[Taste Spain & Portugal](#)

Premium gourmet, wine & specialty tours for groups of any size.
www.saranjan.com

[Grass Fed Beef](#)

Steak, ribs, roasts, & burger. Our ranch, our cattle, in clean MT.
LaCenseBeef.com

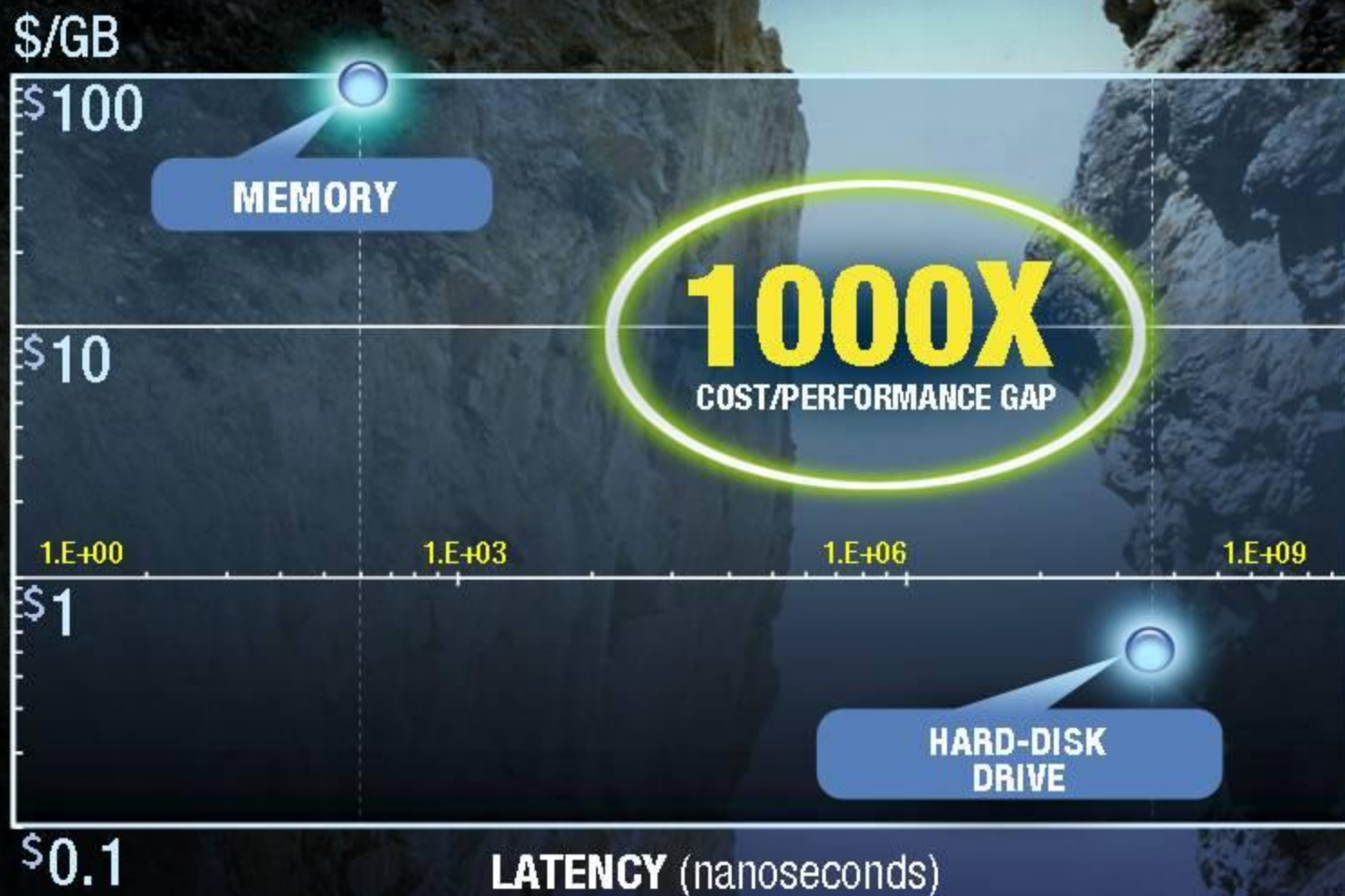
Stephen Crowley/The New York Times

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By [CHRISTOPHER CLAREY](#)

Source: Google

FILLING THE GAP



FUTURE POWER DOMINATION?

LIFETIME COST PER SERVER

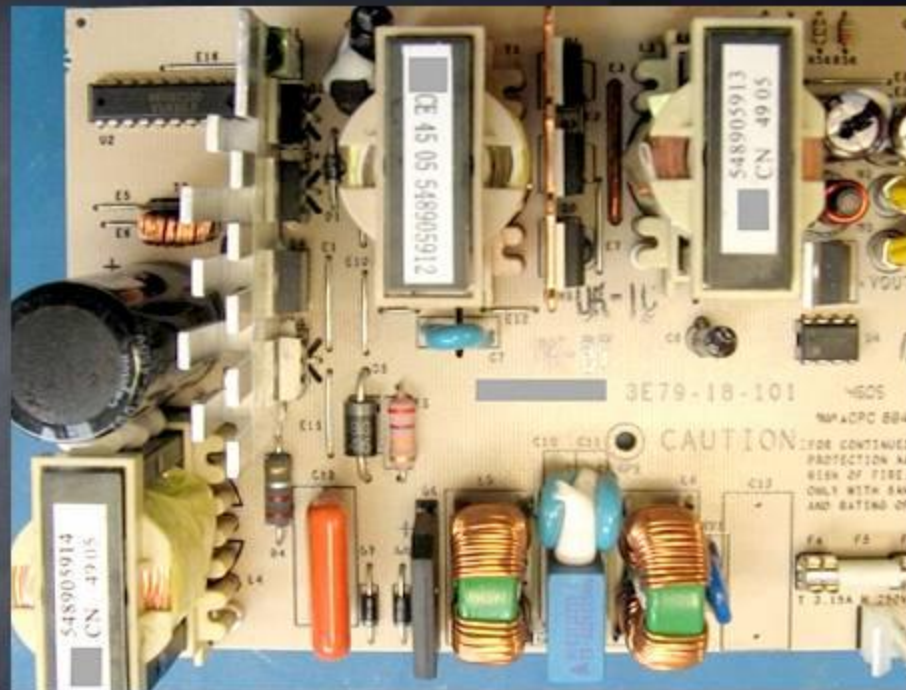


SIMPLE FIXES – BIG GAINS

POWER SUPPLY UNIT



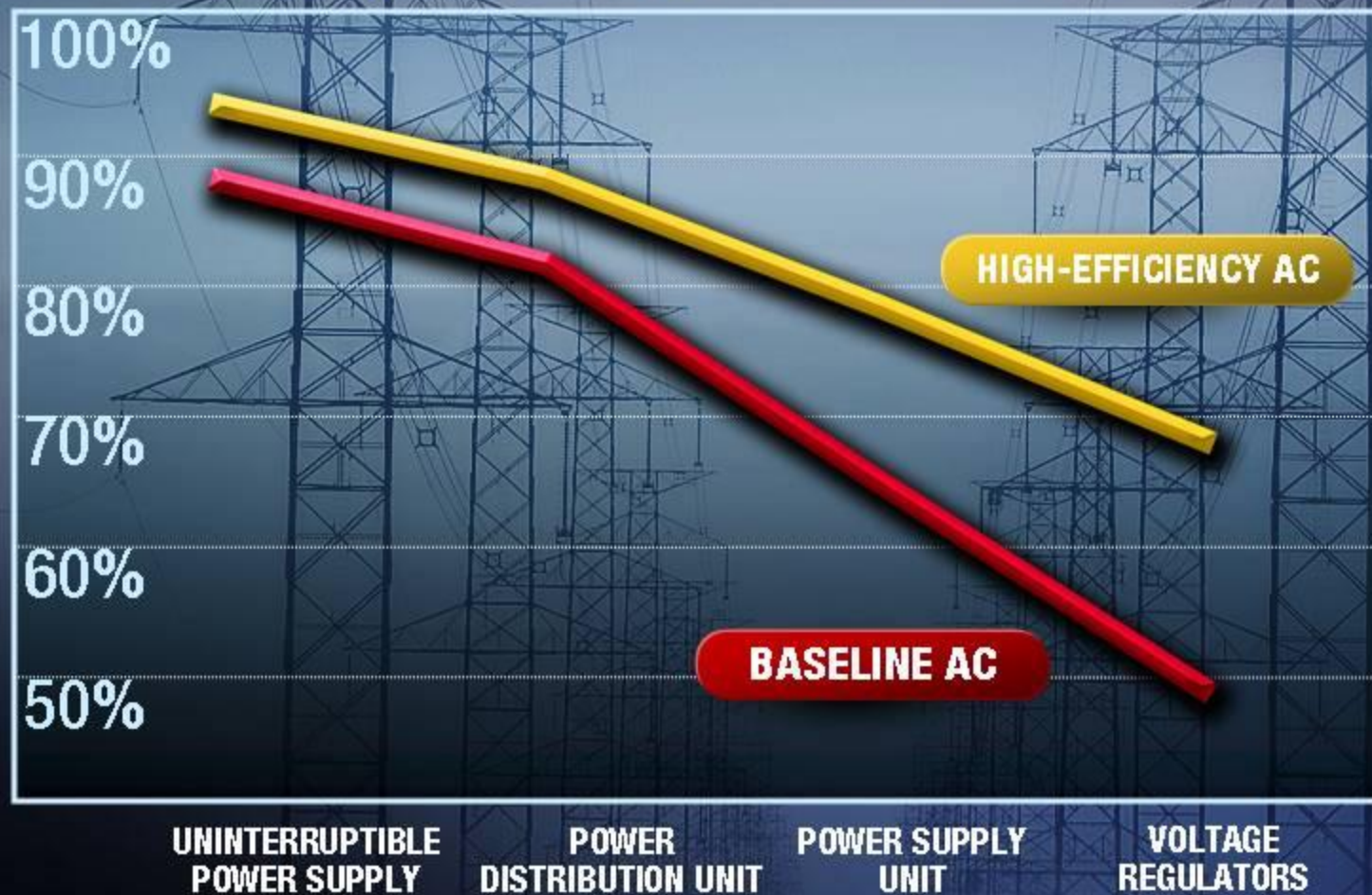
TRADITIONAL
55-70% Efficient



SINGLE VOLTAGE RAIL
90% Efficient

DELIVERY INEFFICIENCY

CUMULATIVE DATACENTER POWER DELIVERY EFFICIENCY



CONVERSION OVERKILL



CONVENTIONAL DATACENTER
AC POWER DISTRIBUTION

SIMPLIFIED DISTRIBUTION

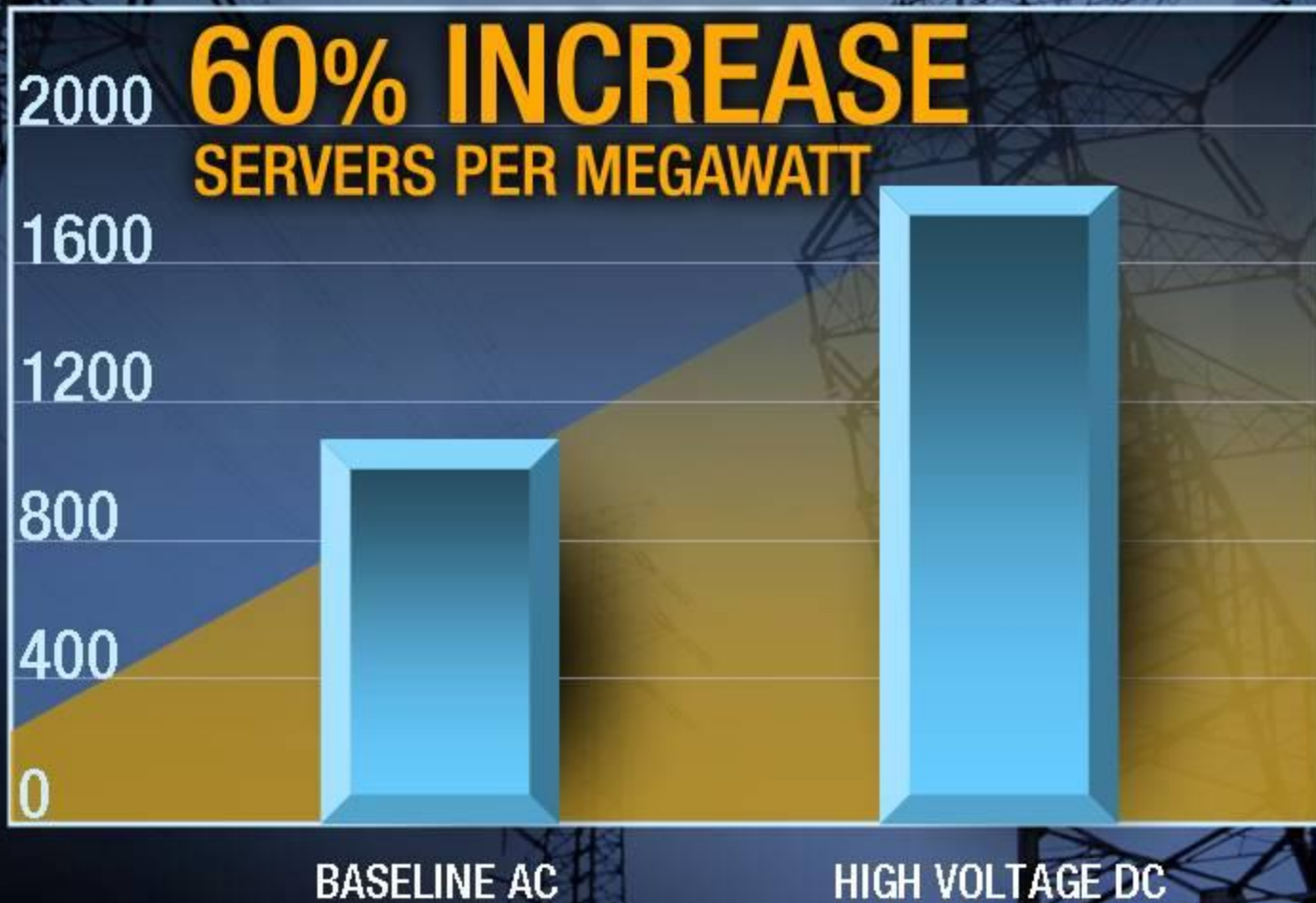


HIGH VOLTAGE DC POWER DISTRIBUTION

HIGH VOLTAGE DC DATACENTER PROTOTYPE



EFFICIENCY REALIZED





DATACENTER INSECURITY

INSIDE AND IN-THE-CLEAR

ORIGIN OF MOST SERIOUS ENTERPRISE THREATS



SECURING THE LINKS

IPSec – End-to-End Encryption



Server

Switch

Switch

Client



LinkSec – Hop-to-Hop Encryption

MEGA-CENTER FACTOIDS

ONE MILLION SERVERS TODAY

800,000 SQUARE FEET =

18 FOOTBALL FIELDS

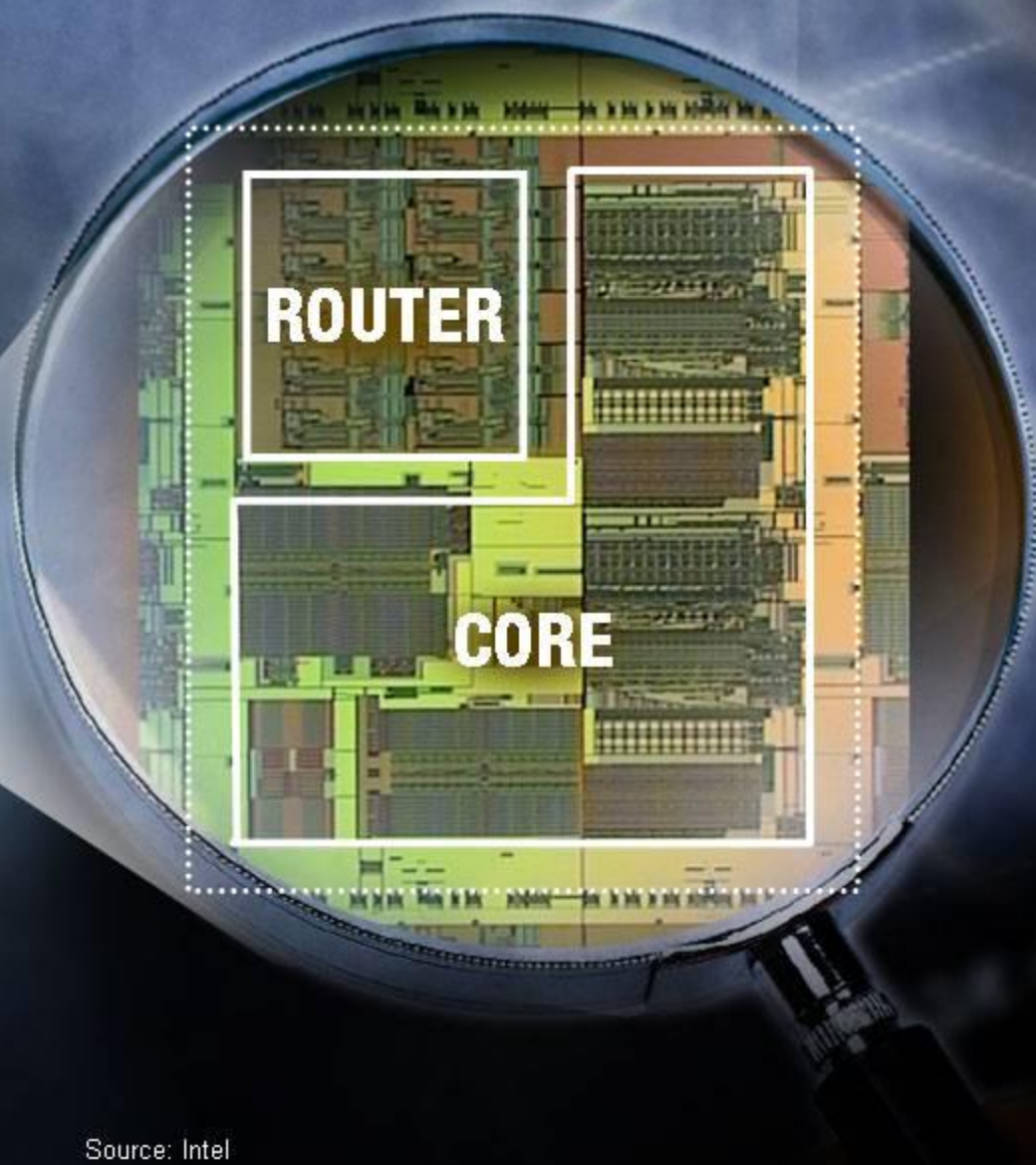
500 MEGAWATTS =

278,000 HOMES

NEED FOR **SPEED & DENSITY**

TERAOPS PERFORMANCE
TERABYTES BANDWIDTH
TERABITS I/O

TERAFLOP OF PERFORMANCE

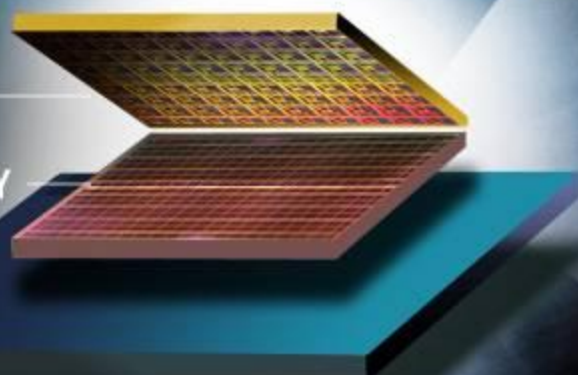


TERABYTES OF BANDWIDTH

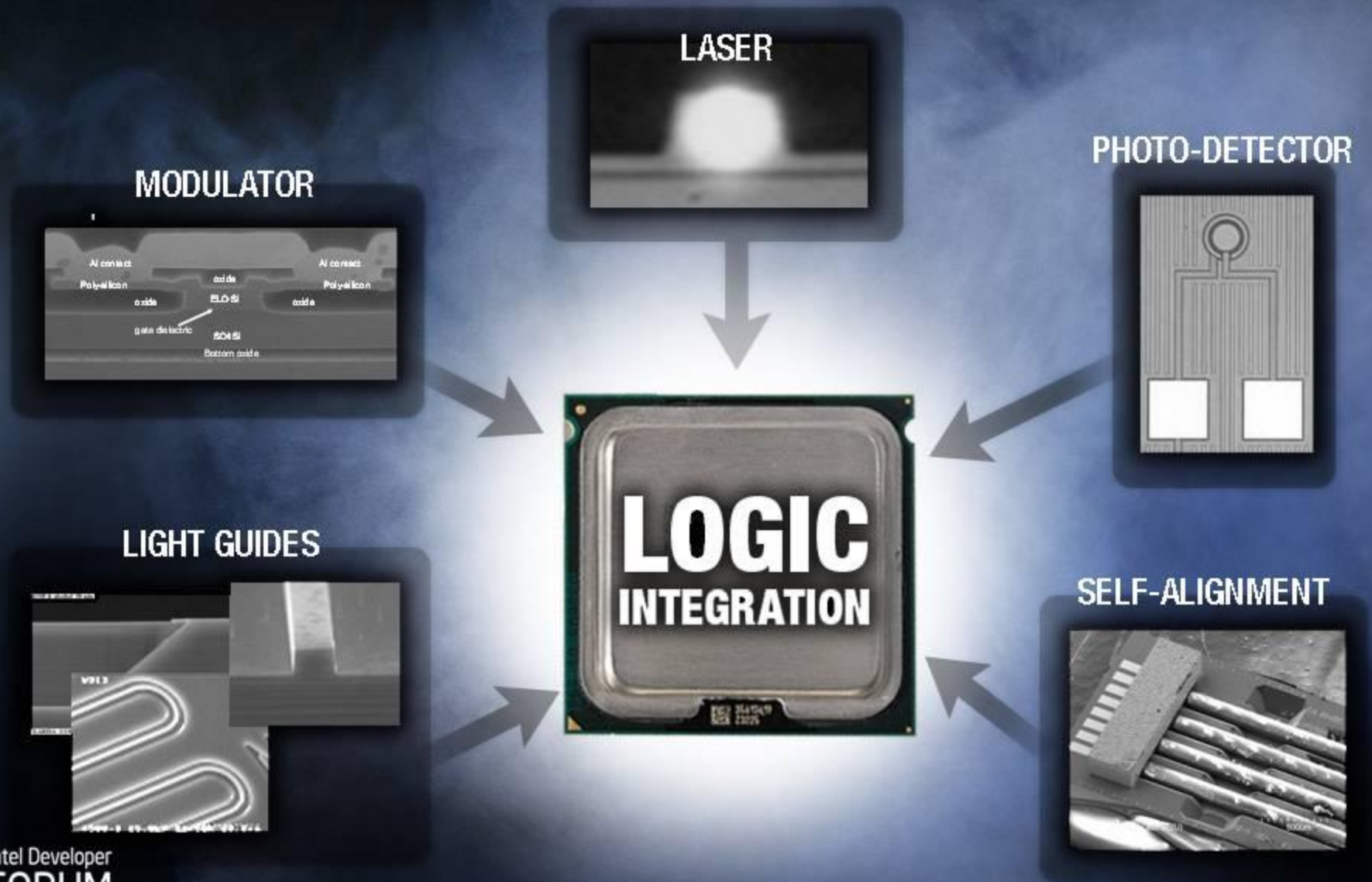
PROCESSOR

STACKED MEMORY

PACKAGE



BUILDING BLOCKS OF SILICON PHOTONICS

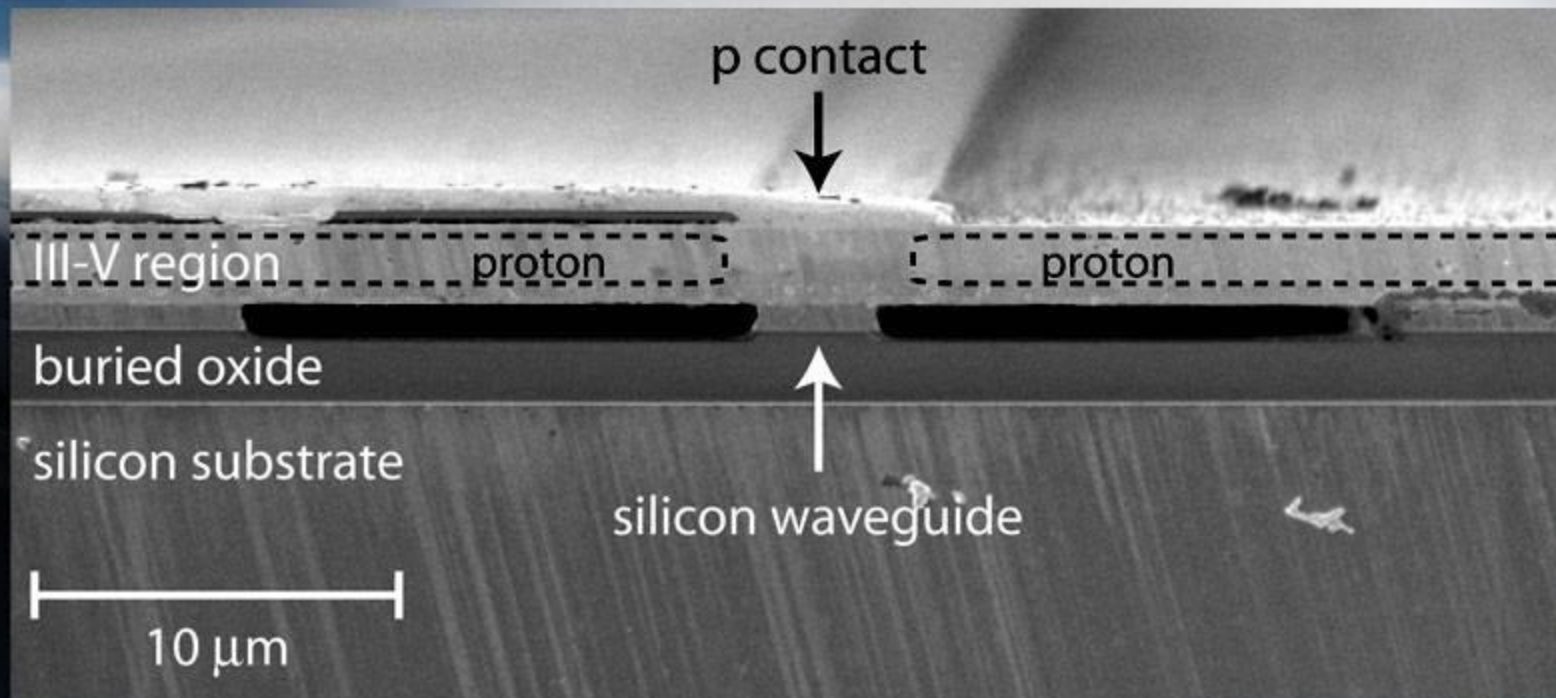


A portrait of Professor John Bowers, a man with glasses and a blue shirt, smiling and holding a small, square, black microchip between his fingers. The background is a blurred laboratory setting with various electronic equipment and cables.

PROFESSOR JOHN BOWERS

UNIVERSITY OF CALIFORNIA, SANTA BARBARA

HYBRID LASER



BREAKTHROUGH: TERABITS OF I/O



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Reliability. Applications. Provisioning. Cost.



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