

2011: a cloud odyssey

Davi Ottenheimer

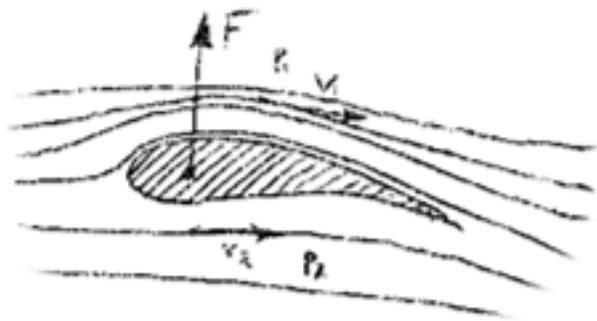
flyingpenguin

davi@flyingpenguin.com

@daviottenheimer



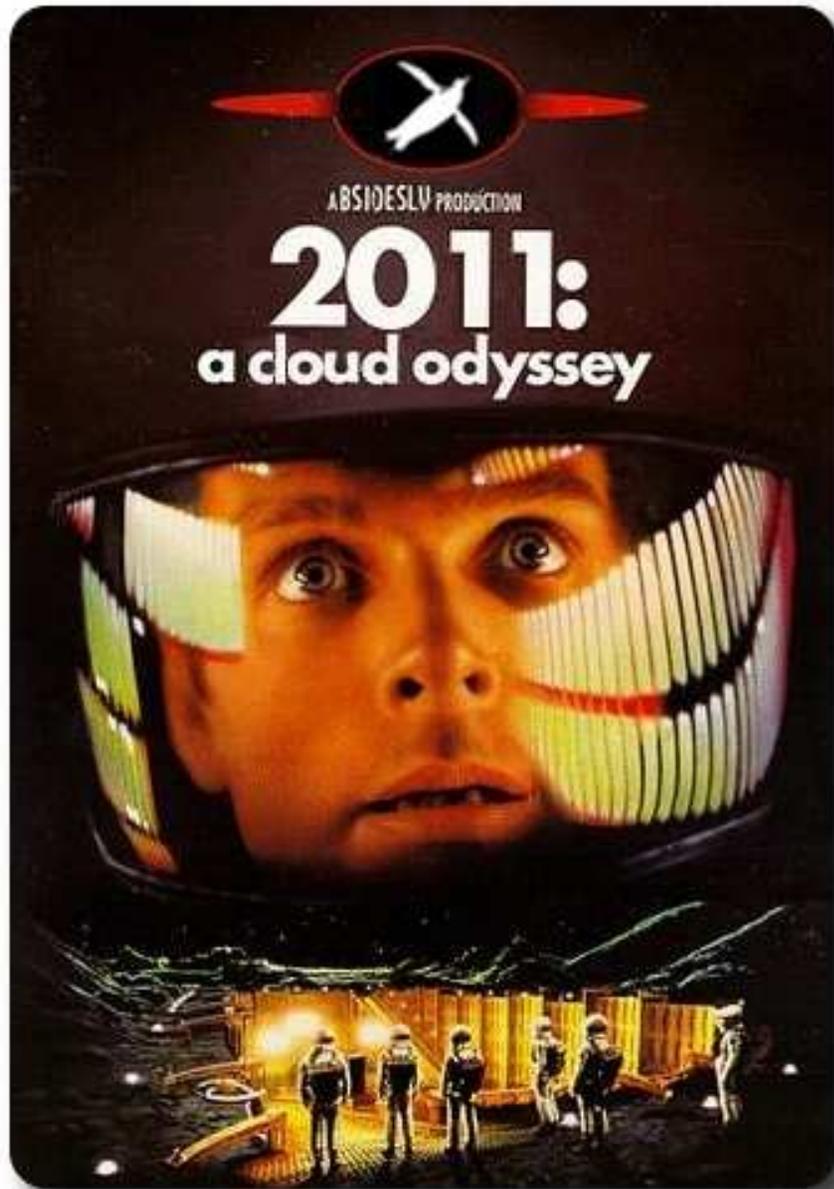
flyingpenguin





BSidesSF 2011

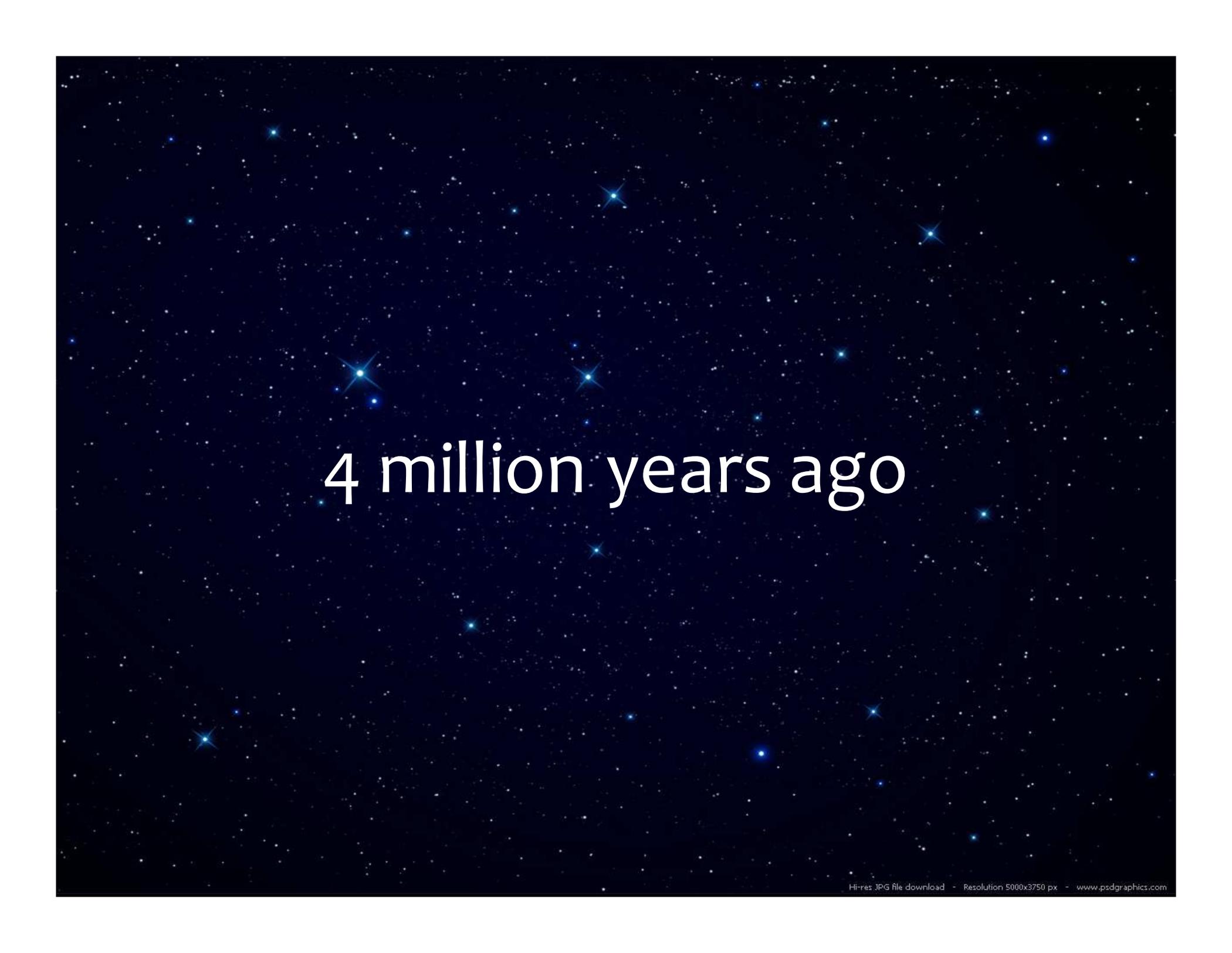
Dr. Stuxlove:
The irrationality of
humans



BSidesLV 2011

1. What defines human nature
2. How can technology change #1
3. Does automation reduce total risk
4. Fact, fiction or philosophy: superuser

<1>



4 million years ago









A dark blue starry night sky background with the word '<analysis>' centered in white. The sky is filled with numerous small white stars and several larger, bright blue stars with prominent diffraction spikes. The text is rendered in a clean, white, sans-serif font.

<analysis>

ADAPT

or die



tool
“wins”



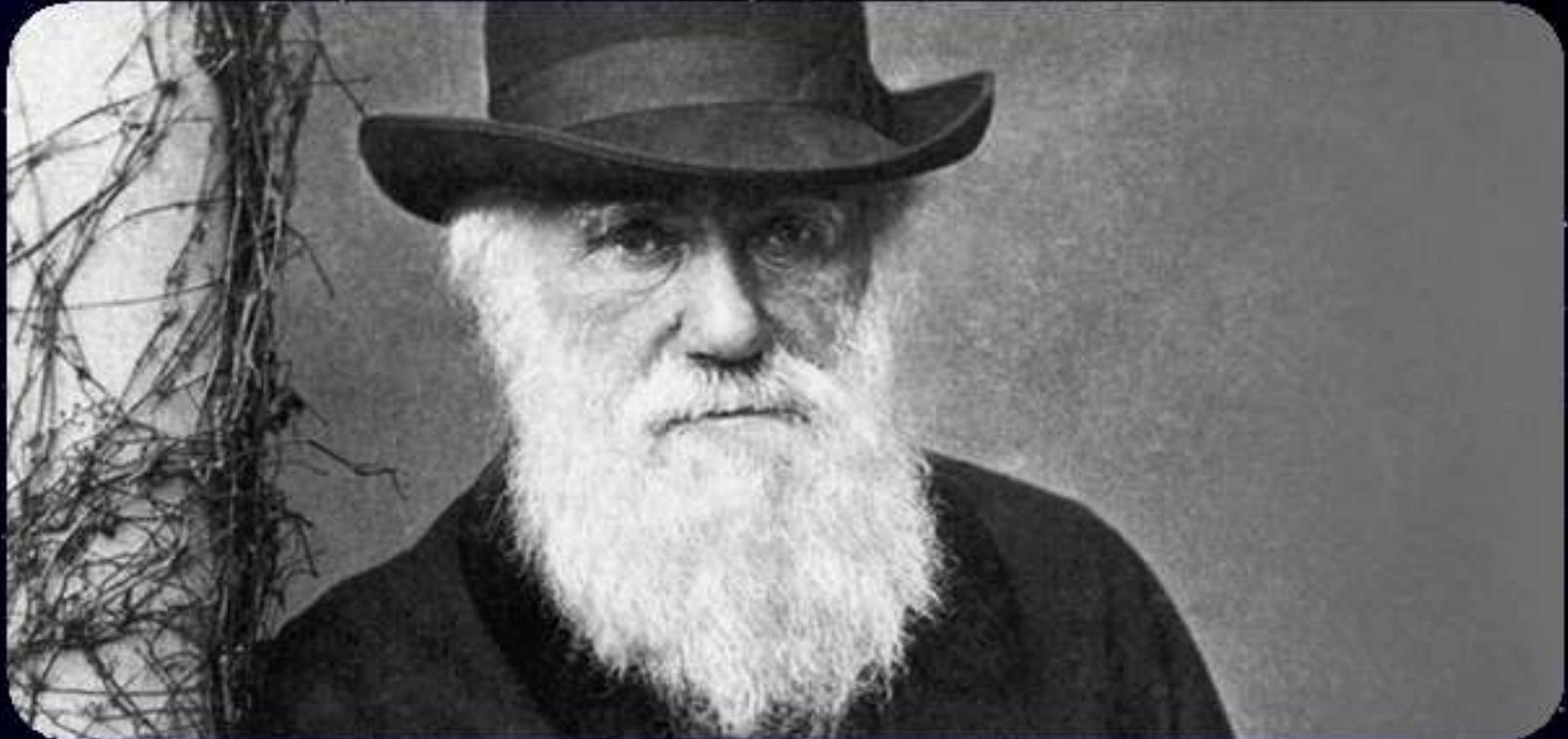
Monolith 1

Early Human Challenge

Fear, Curiosity, Courage

=

tool!

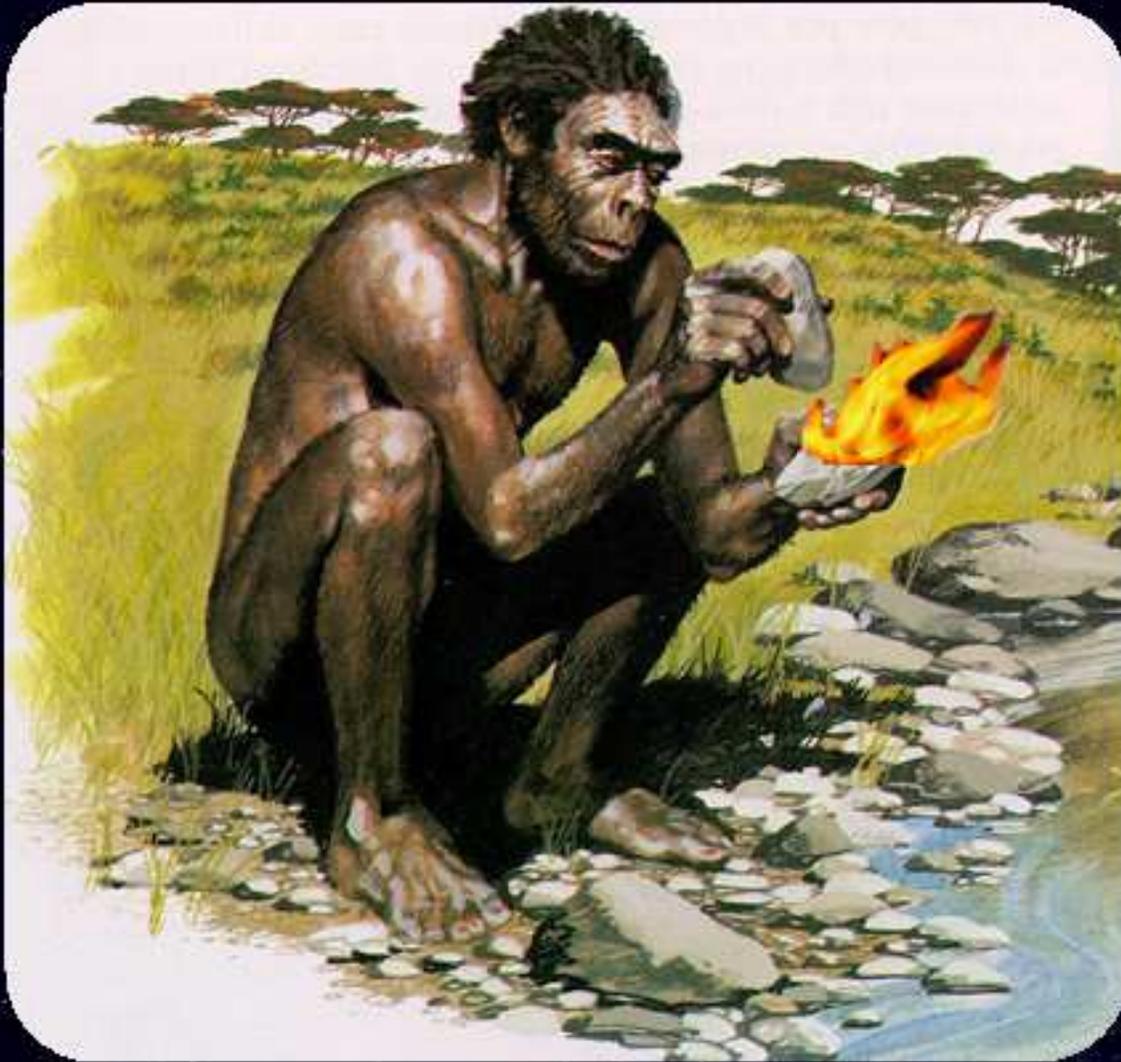


“[Similar tools] can only be accounted for by the various races having similar **inventive or mental powers.**”

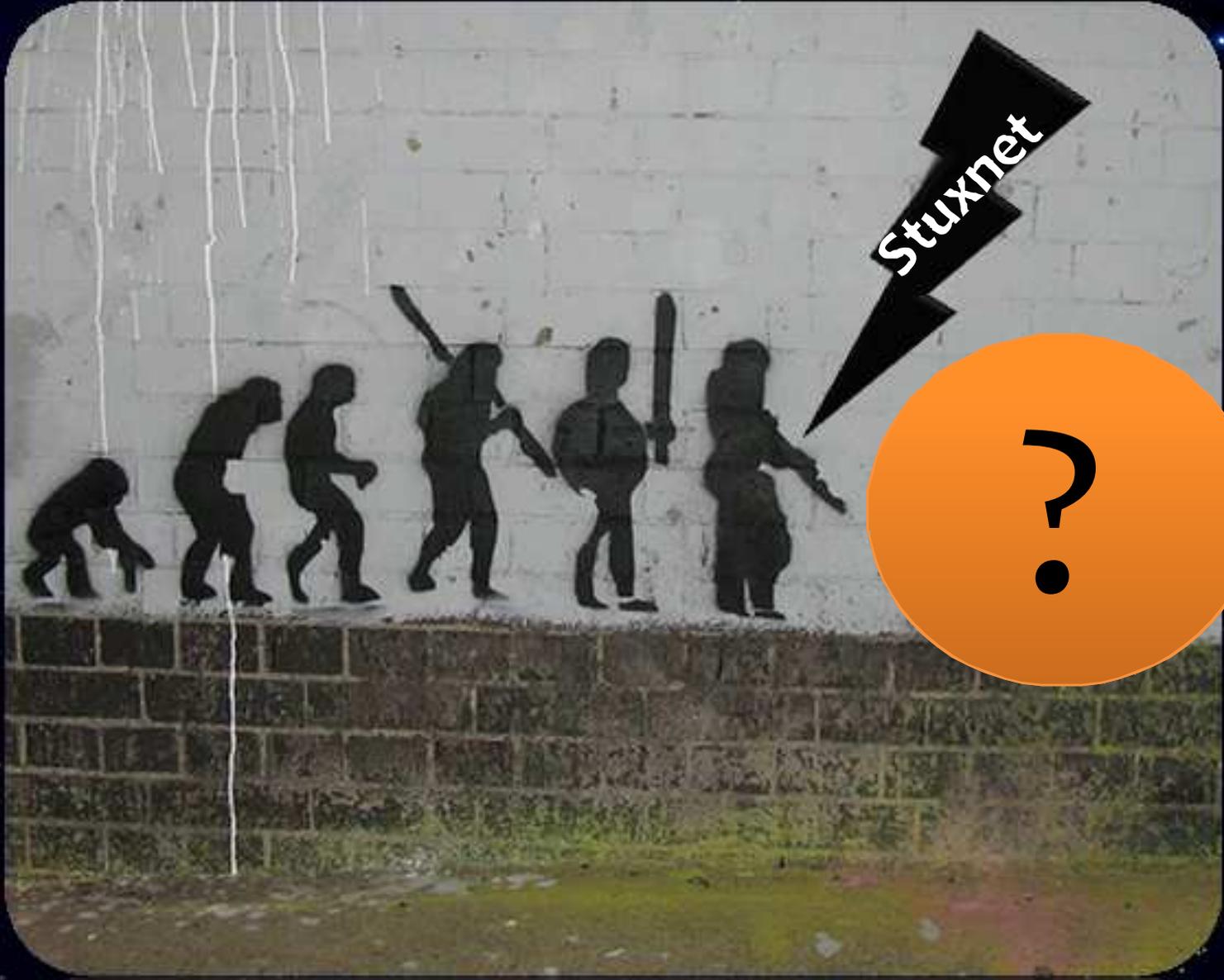
-- Darwin, *The Descent of Man*, Ch VII



inventive or mental powers



“intelligence is a tool”



Stuxnet



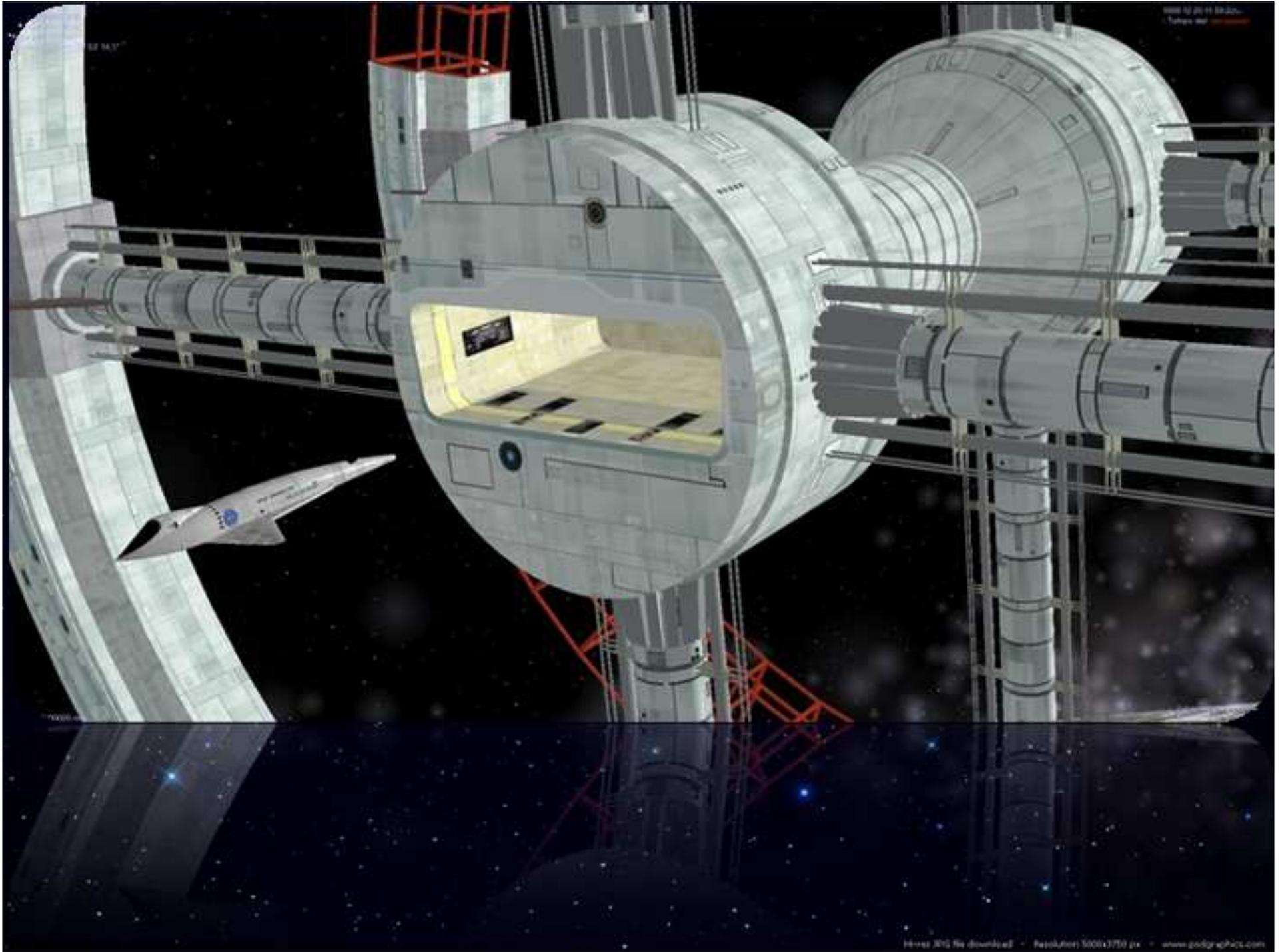
<2>

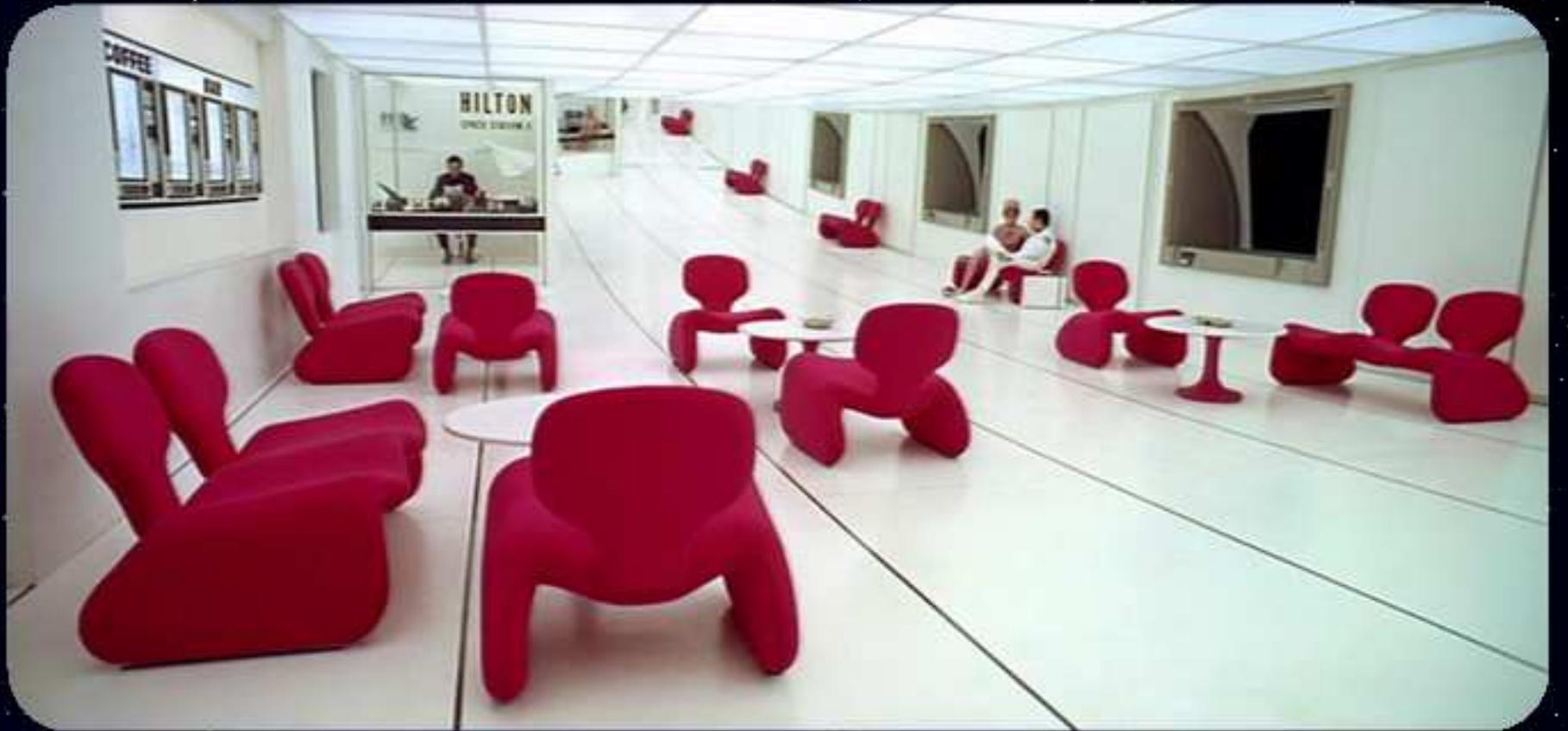


“... when that bone goes up into the air, what it turns into is an **orbiting nuclear bomb**. That was what we really meant.”

– A. C. Clarke









Dr. Floyd:

“What's that? Chicken?”

Dr. Bill Michaels:

“Something like that. Tastes the same anyway.”

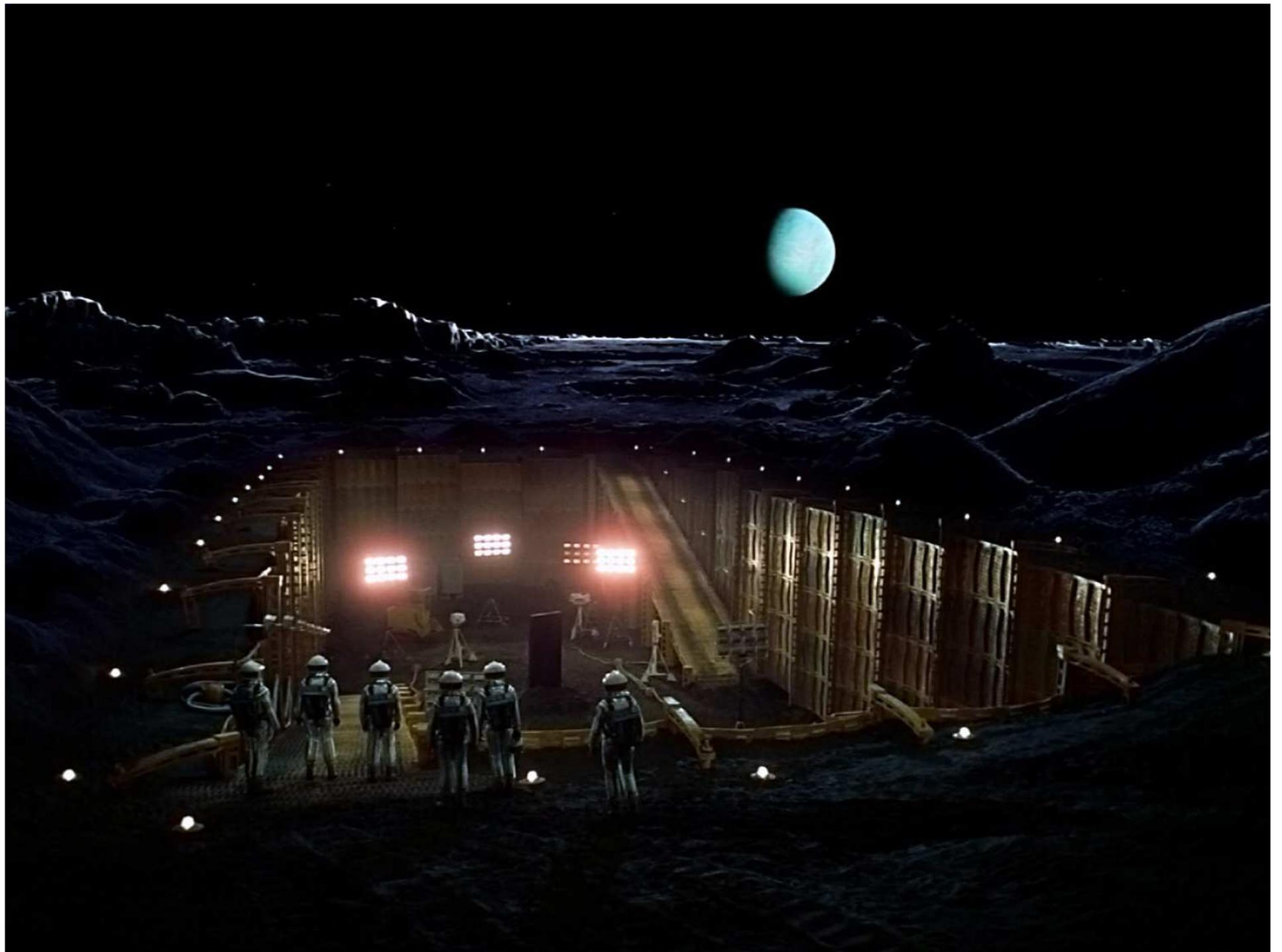


Dr. Floyd:

“Don't suppose you have any idea
what the damn thing is, huh?”

Dr. Rolf Halvorsen:

“Wish to hell we did.”





The image features a dark blue, starry night sky background. The stars are of various sizes and colors, with some appearing as bright blue points of light. The word "<analysis>" is centered in the middle of the image in a white, sans-serif font. The text is enclosed in angle brackets, which are also white and match the font style. The overall composition is simple and clean, with the text standing out prominently against the starry background.

<analysis>



something is...

WRONG



4 million years
of evolution



humans
back to being
babies

A dark blue starry night sky with the word "lost" in white text. The sky is filled with numerous small white stars and several larger, bright blue stars with four-pointed diffraction patterns. The word "lost" is centered in a clean, white, sans-serif font.

lost

**shift in focus from
adaptability**

to



tools



Monolith 2

Modern Human Challenge

Science, Civility, Rationality

=

Transfer to tools

VOL. 154, NO. 4

OCTOBER 1978

NATIONAL GEOGRAPHIC

CONVERSATIONS
WITH A GORILLA 438

DREAM ON, VANCOUVER 467

NEBRASKA'S SAND HILLS 493

DJIBOUTI, NEW NATION
ON AFRICA'S HORN 518

AN AMERICAN RETRACES
"TRAVELS WITH A DONKEY" 535

SUNKEN TREASURE
OF ST. HELENA 562

OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D.C.

WTF?!





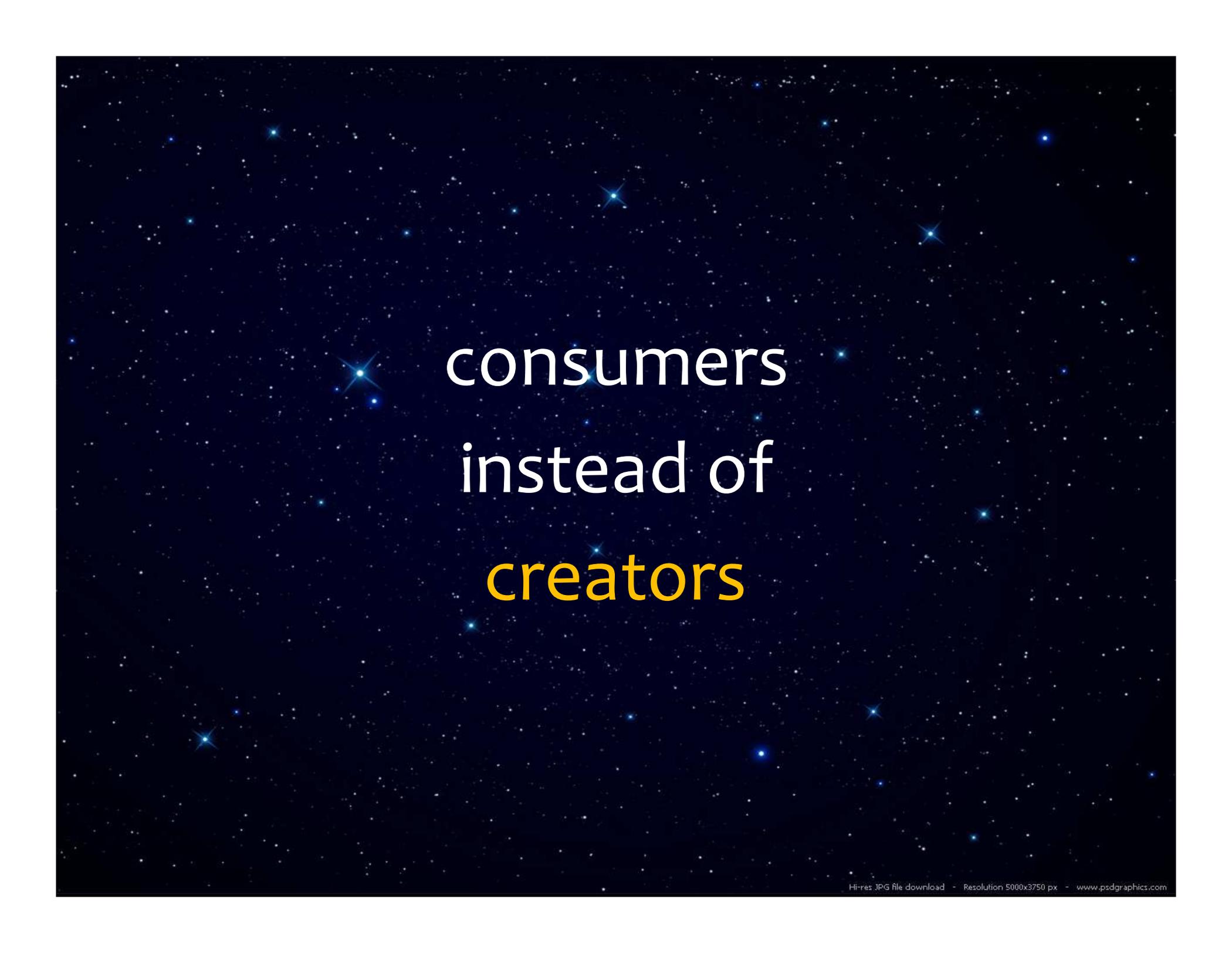
Baby Steps



Baby Food

“Potty Training”





consumers
instead of
creators



“...vocal chords will be **eliminated**
by a process of evolution,
as was the tail of man
when he came from the ape.”



- JP Sousa, 1906

vocal chords...
eliminated?



tech's
double-edge



human nature amplified by technology

RT: human nature amplified by technology



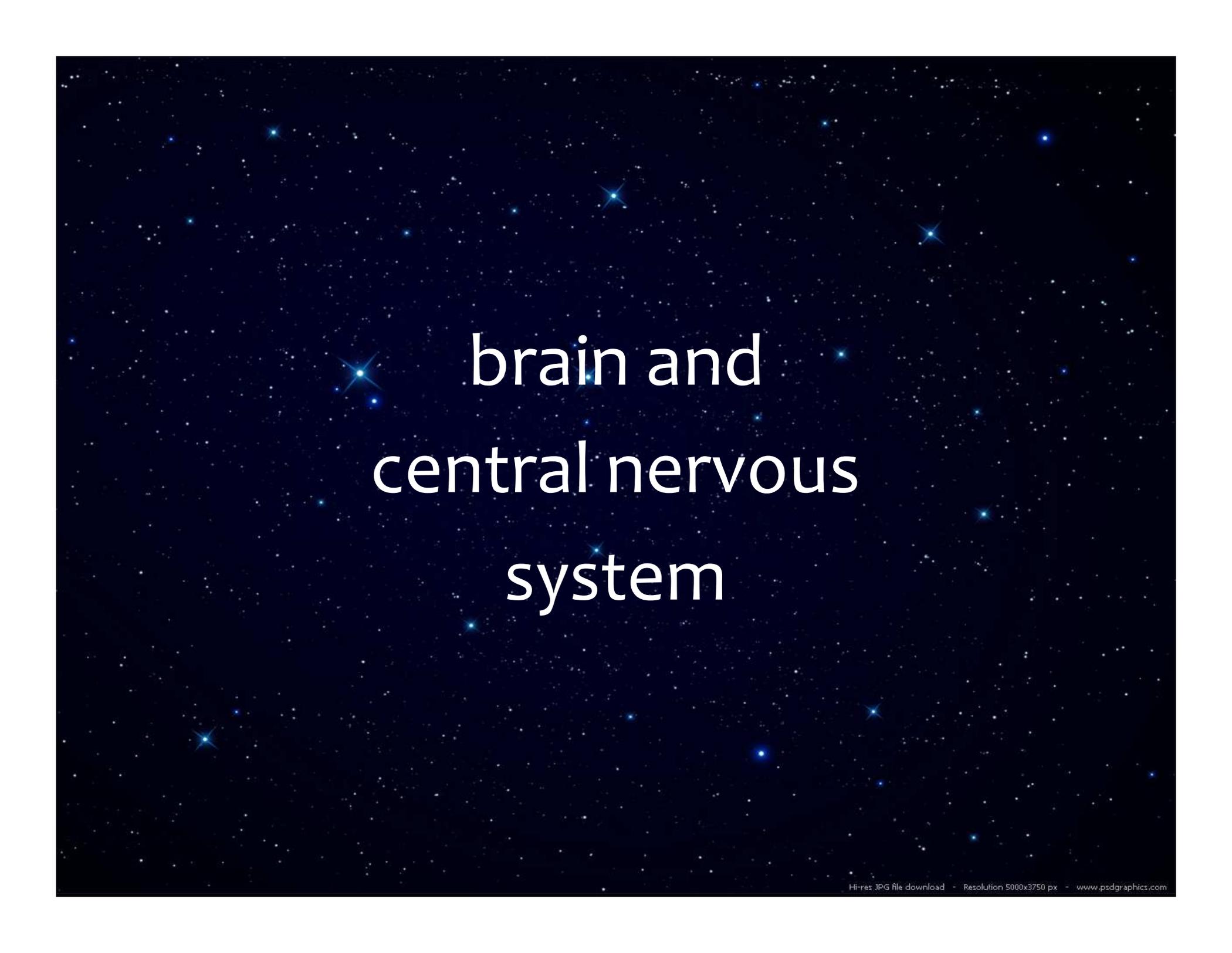
<3>

mission to jupiter



HEURISTICALLY
PROGRAMMED
ALGORITHMIC
COMPUTER

9000



brain and central nervous system



so easy
to use



Dropbox

simplify your life

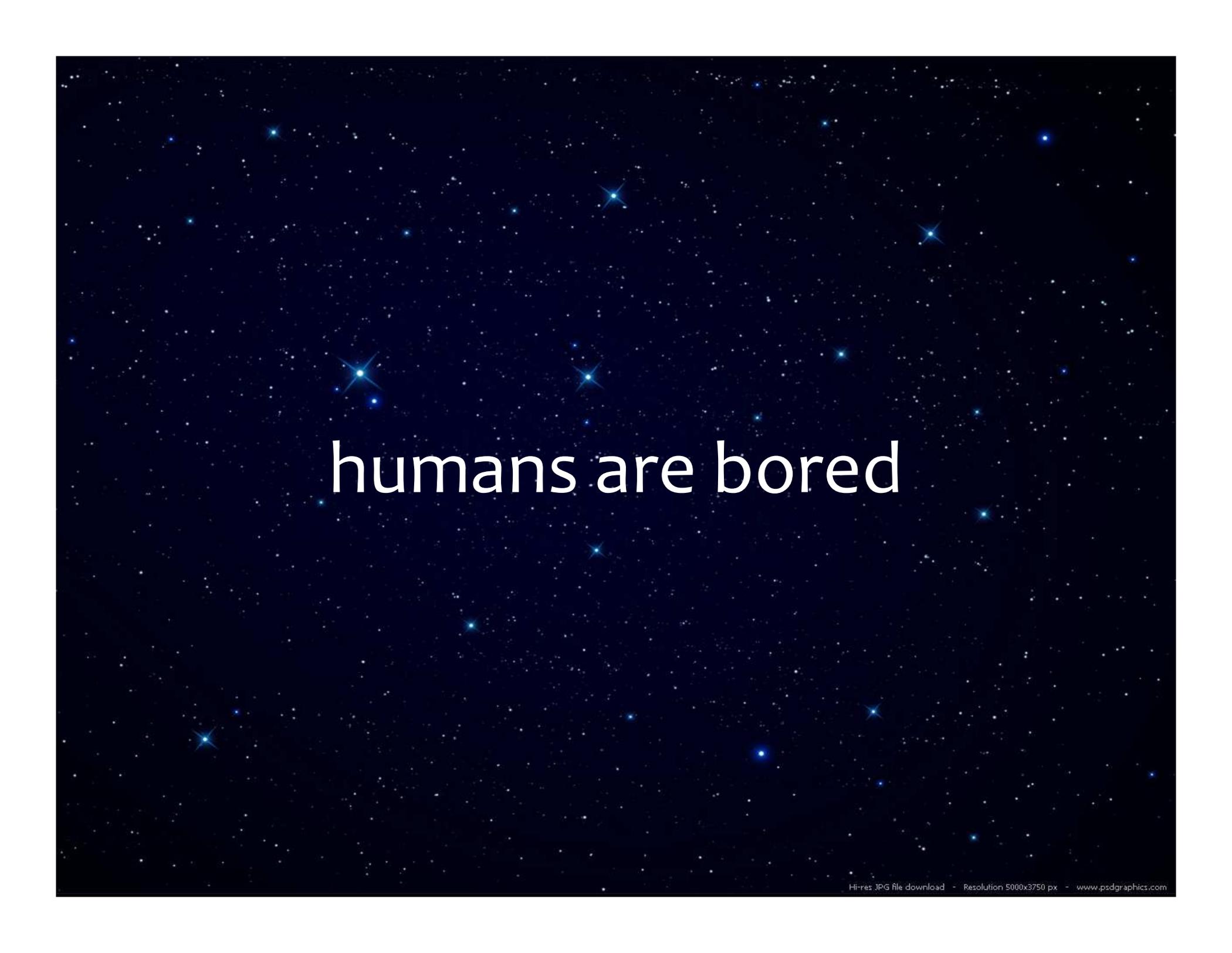


humans become
boring





No need to think

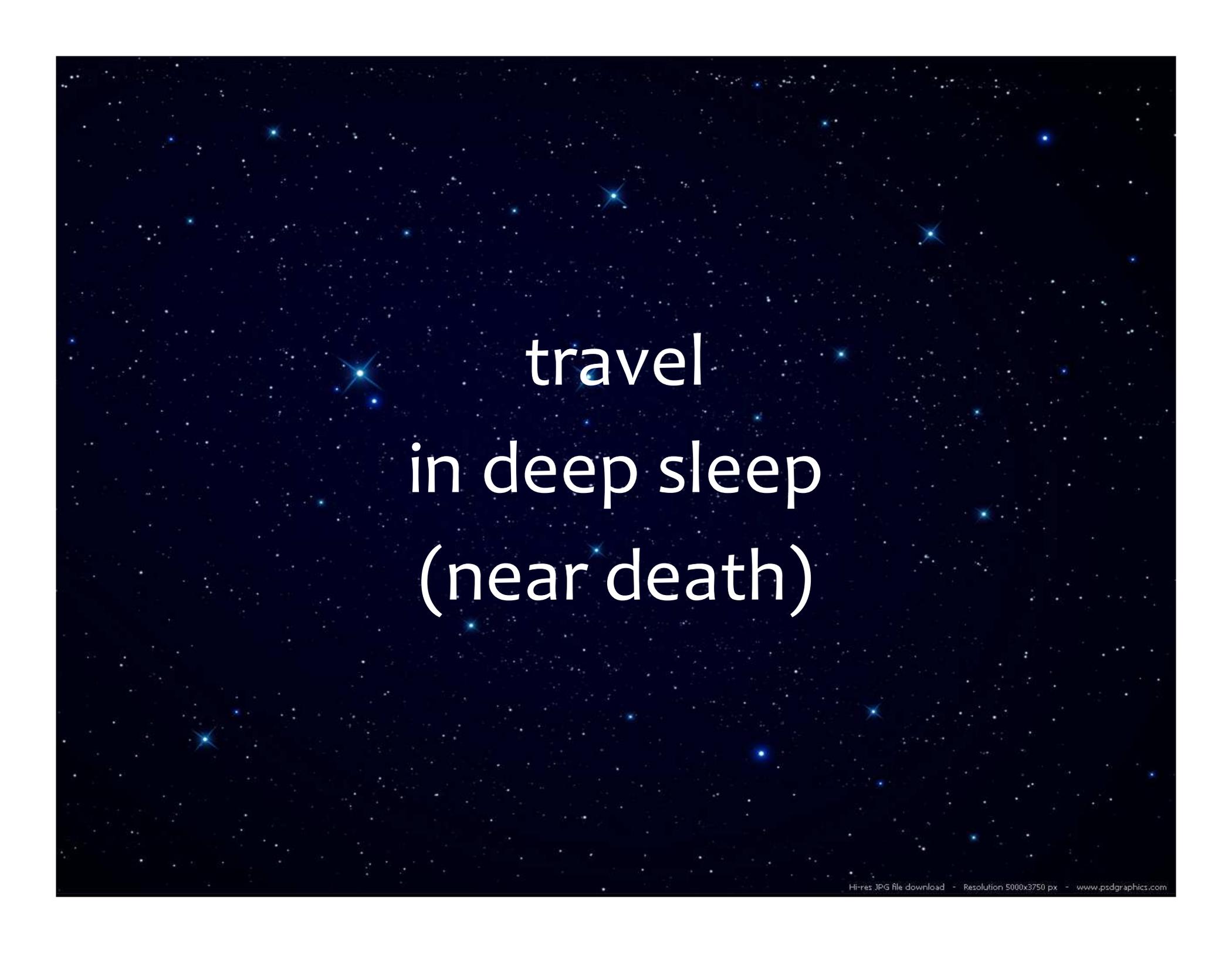
A dark blue starry night sky background with the text "humans are bored" centered in white. The sky is filled with numerous small white stars and several larger, bright blue stars with prominent diffraction spikes.

humans are bored



humans have become
stupid consumers
of tools





travel
in deep sleep
(near death)



humans no longer
in control



only the tool
is “alive”



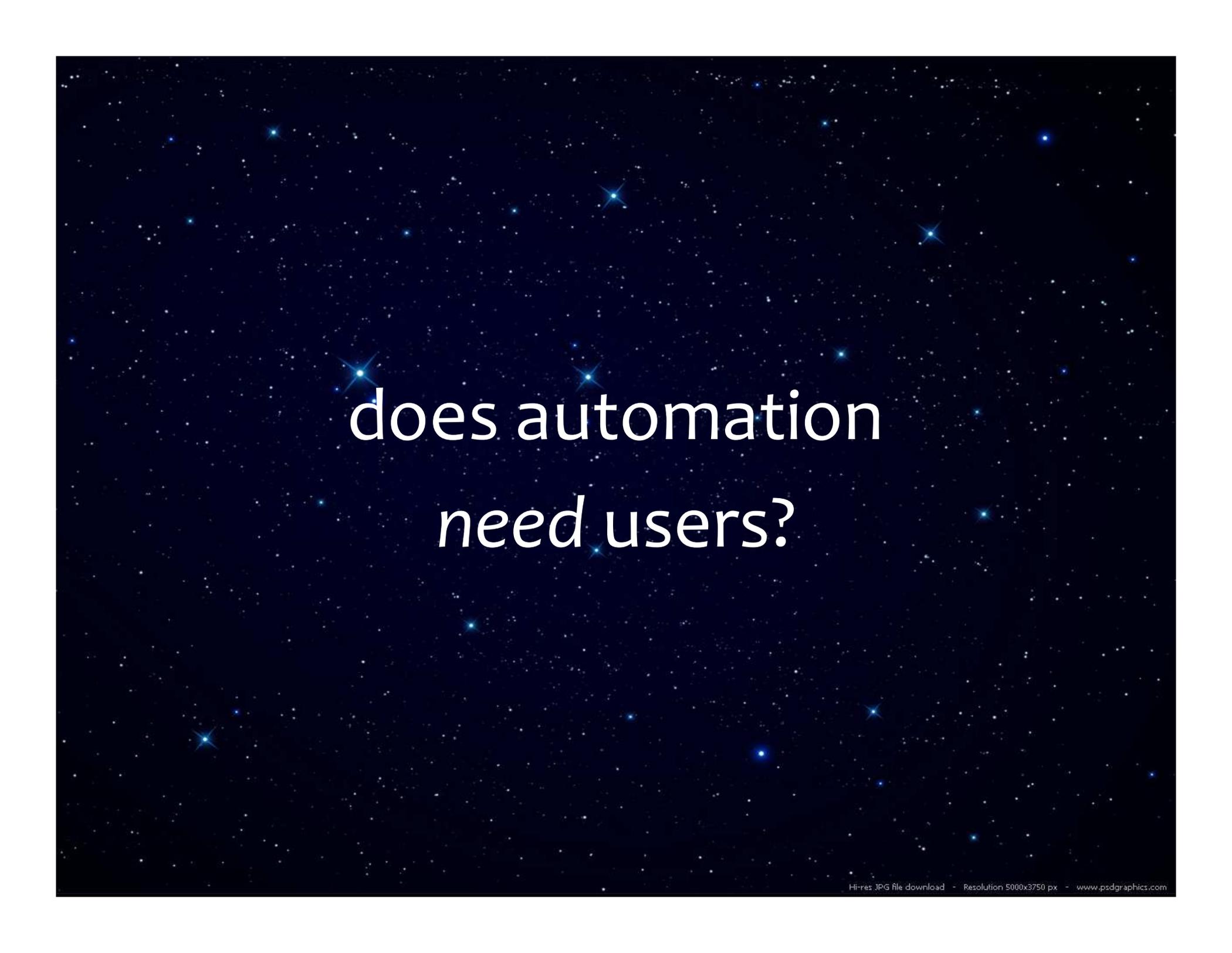


facial recognition

HAL9000
predicts risk
of mission threat



with confidence



does automation
need users?



judging it

“No HAL 9000 series computer has ever made a mistake or distorted information. We are all, by any practical definition of the word, foolproof, and incapable of error.”



Google



humans face struggle
between
authority and liberty



HAL is watching



Bluetooth Travel-time Origination And Destination (TOAD)

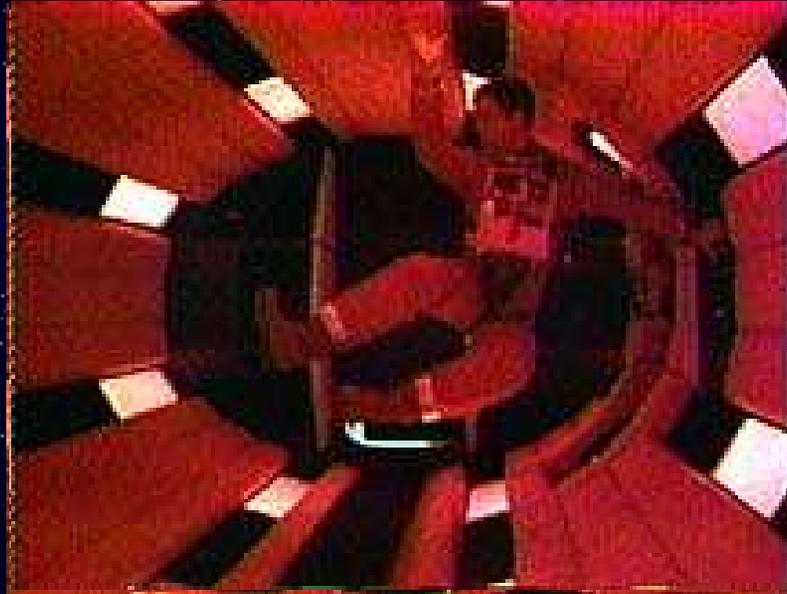




survival tools



vulnerability



ingenuity



HAL admits mistake

new tool versus
old tool
(+ ingenuity)





human
“wins”



alone

in

space

A dark blue starry night sky background with the word '<analysis>' centered in white text. The sky is filled with numerous small white stars and several larger, bright blue stars with prominent diffraction spikes. The text is in a clean, white, sans-serif font.

<analysis>

oops...



DYNAMIC INFRASTRUCTURE

Separate

Consolidate

Aggregate

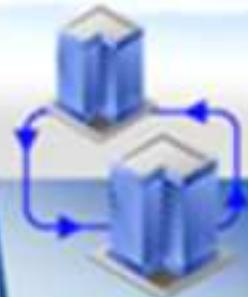
Automate

Test and Development

Server Consolidation

Capacity On Demand

Self-Managing Datacenters



Emerging Tech

Virtualization maturity

Server standardization and services-based compute

Network standardization and services-based infrastructure

<http://devcentral.f5.com/weblogs/macvittie/archive/2011/07/20/non-disruptive-does-not-mean-no-impactful.aspx>



Monolith 3

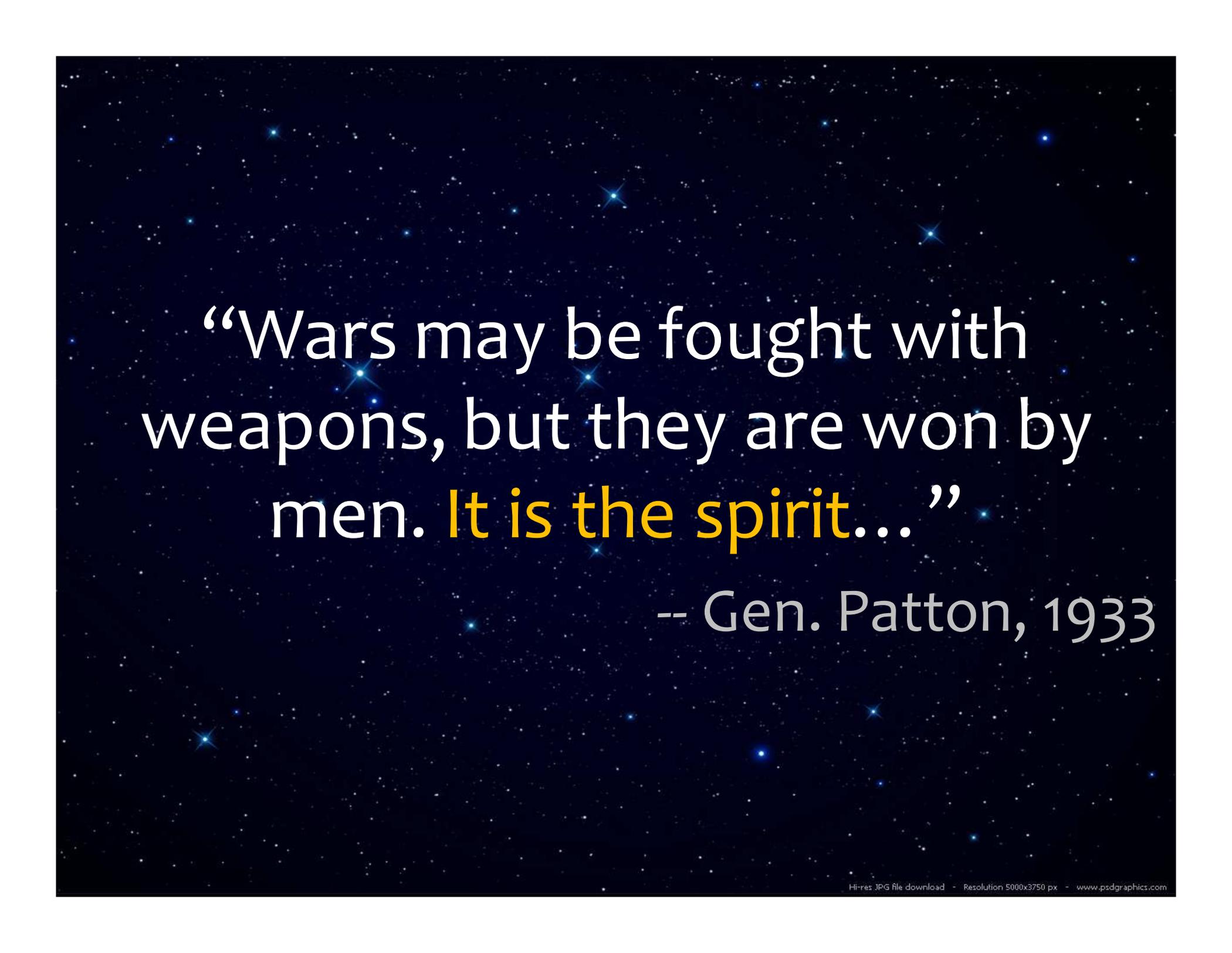
Later Human Challenge

Ingenuity, Creativity, Intelligence

=

Spirit





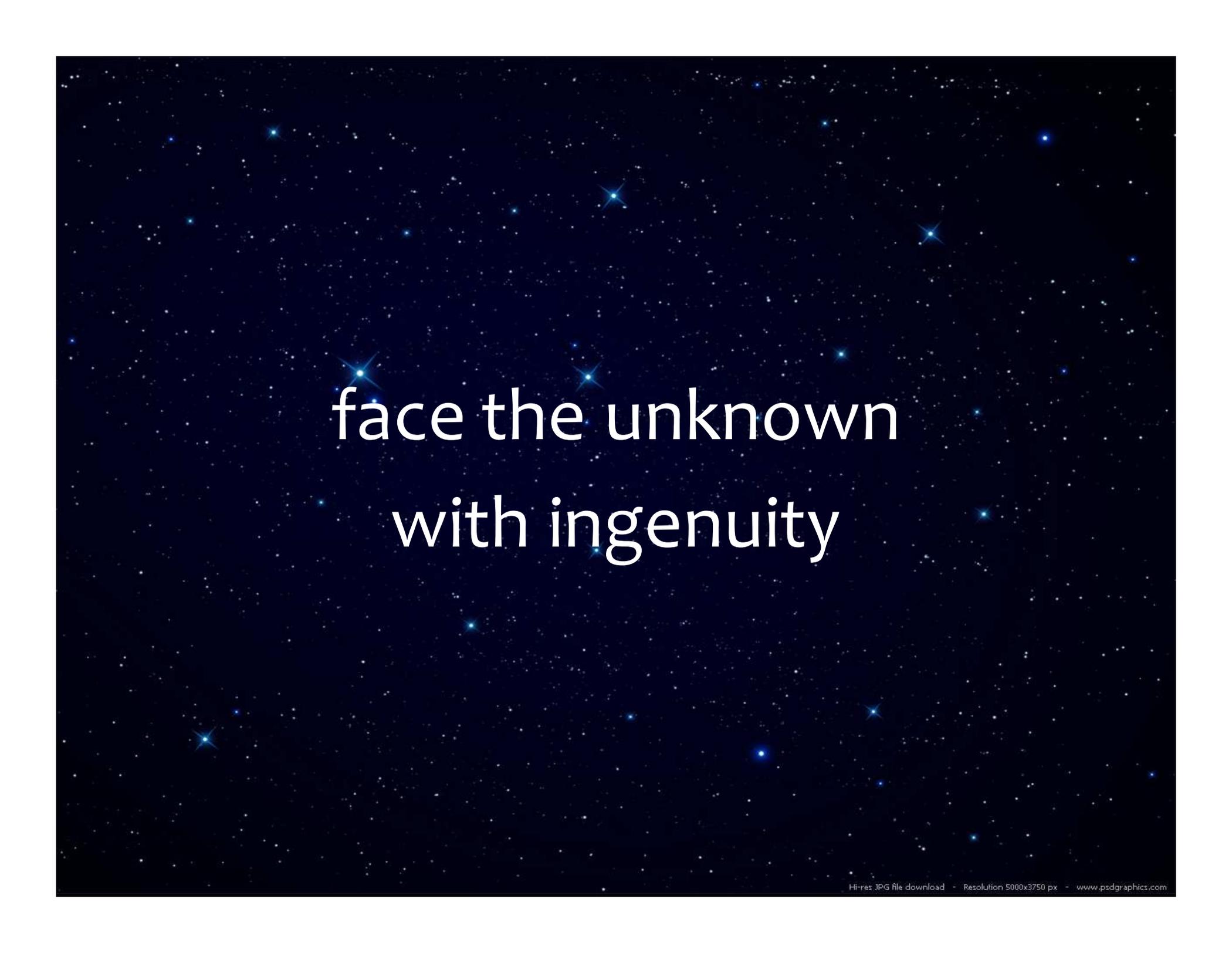
“Wars may be fought with
weapons, but they are won by
men. **It is the spirit...**”

-- Gen. Patton, 1933

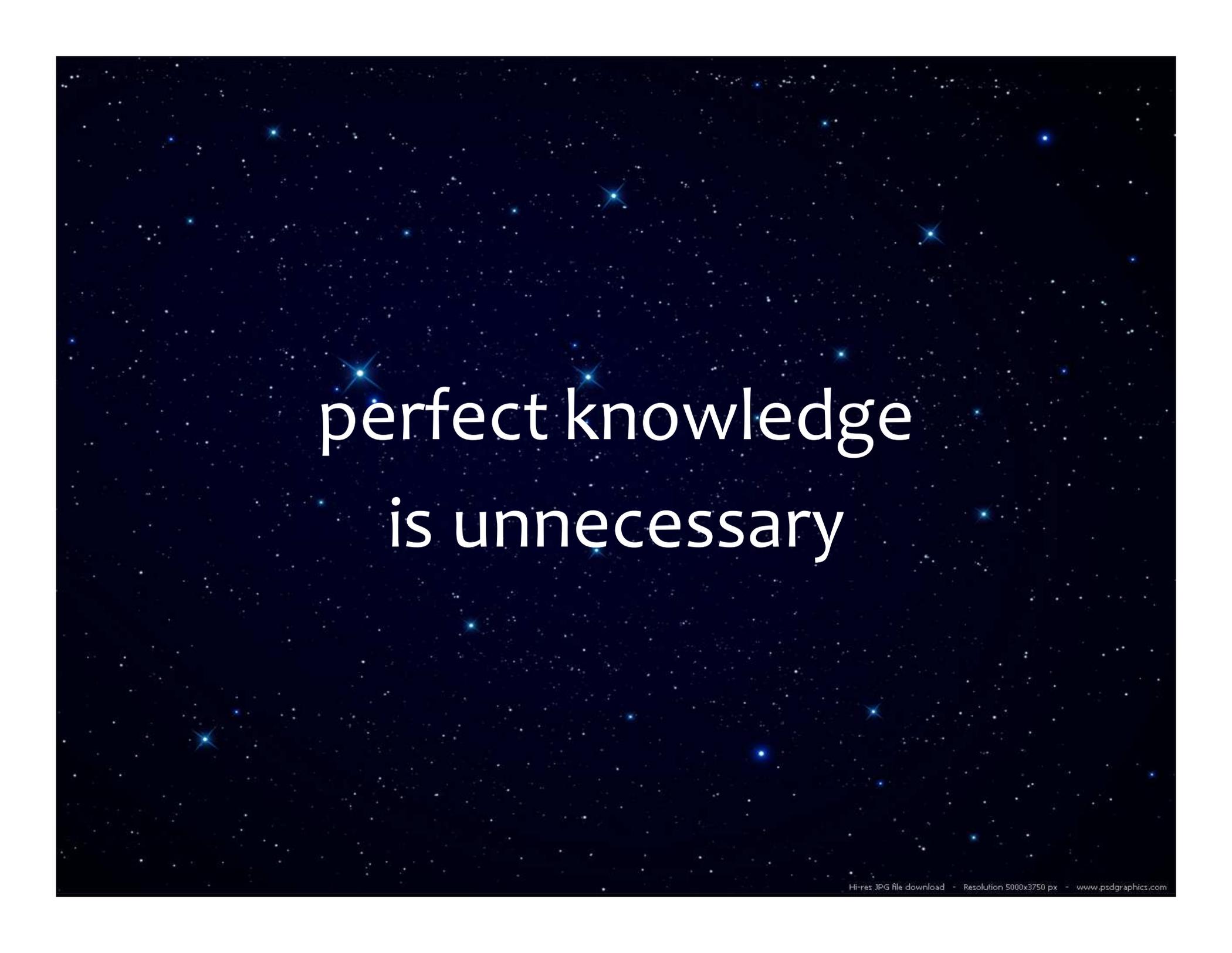
don't just

retweet

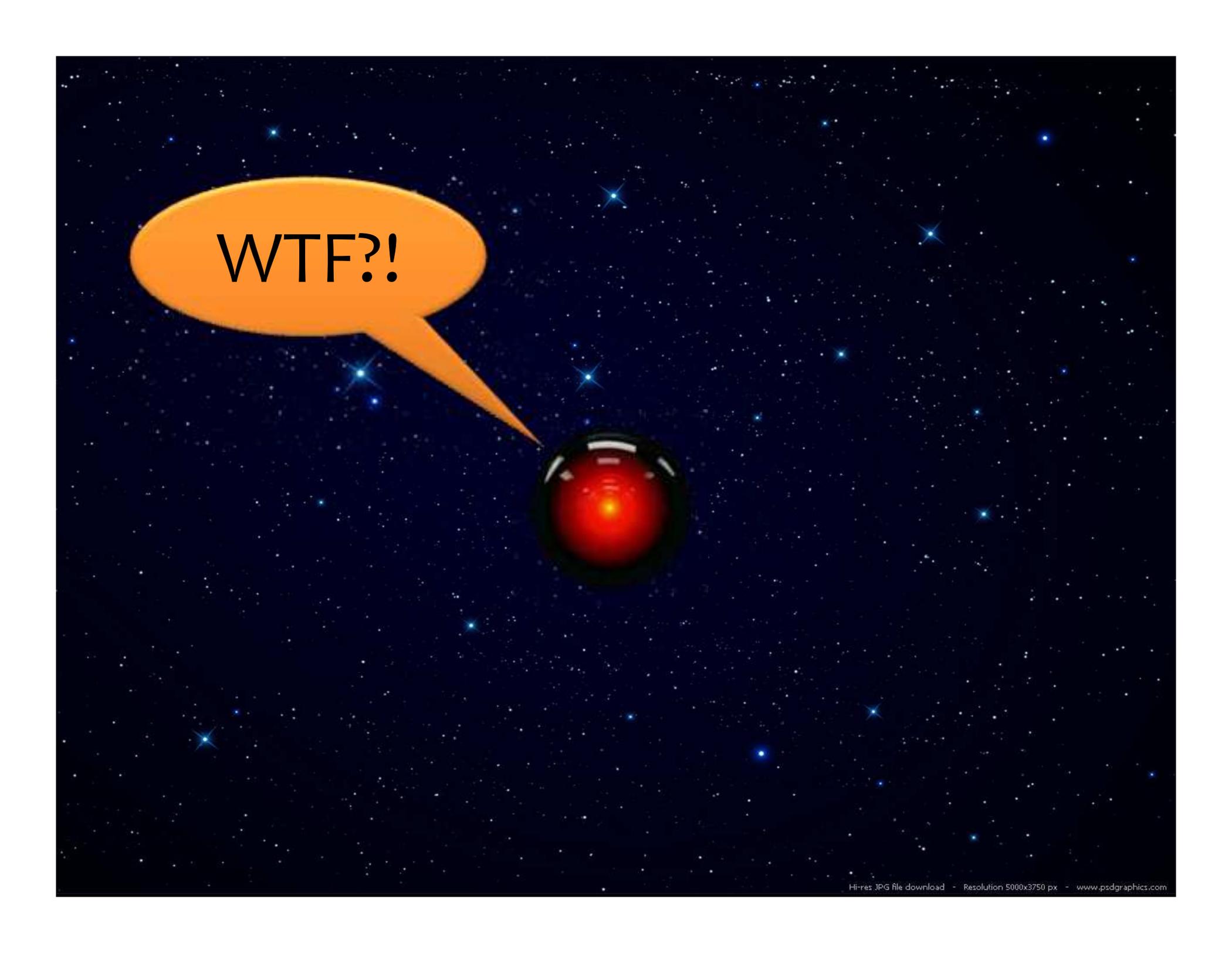




face the unknown
with ingenuity



perfect knowledge
is unnecessary

A red glowing sphere with a bright yellow center and a dark red outer glow is positioned in the lower center of the frame. A yellow speech bubble with a black outline points from the sphere towards the upper left. The background is a dark blue night sky filled with numerous small white stars and several larger, bright blue stars with four-pointed diffraction patterns.

WTF?!

“reputation” monitoring isn't foolproof

Product Specific

- Reputational Intelligence Services - Launch and perform life cycle management to Reputational Intrusion Detection and Intrusion Prevention Services

• DoD Security Clearance • **Secret**
Additional Qualification: Bachelor of Science especially in Computer Science
Electrical Engineering a plus • **Masters** Degree in Business, IT or Industry Certifications



freedom is

chaotic

A dark blue starry night sky background with the text "mistakes happen" centered in white. The sky is filled with numerous small white stars and several larger, bright blue stars with prominent diffraction spikes.

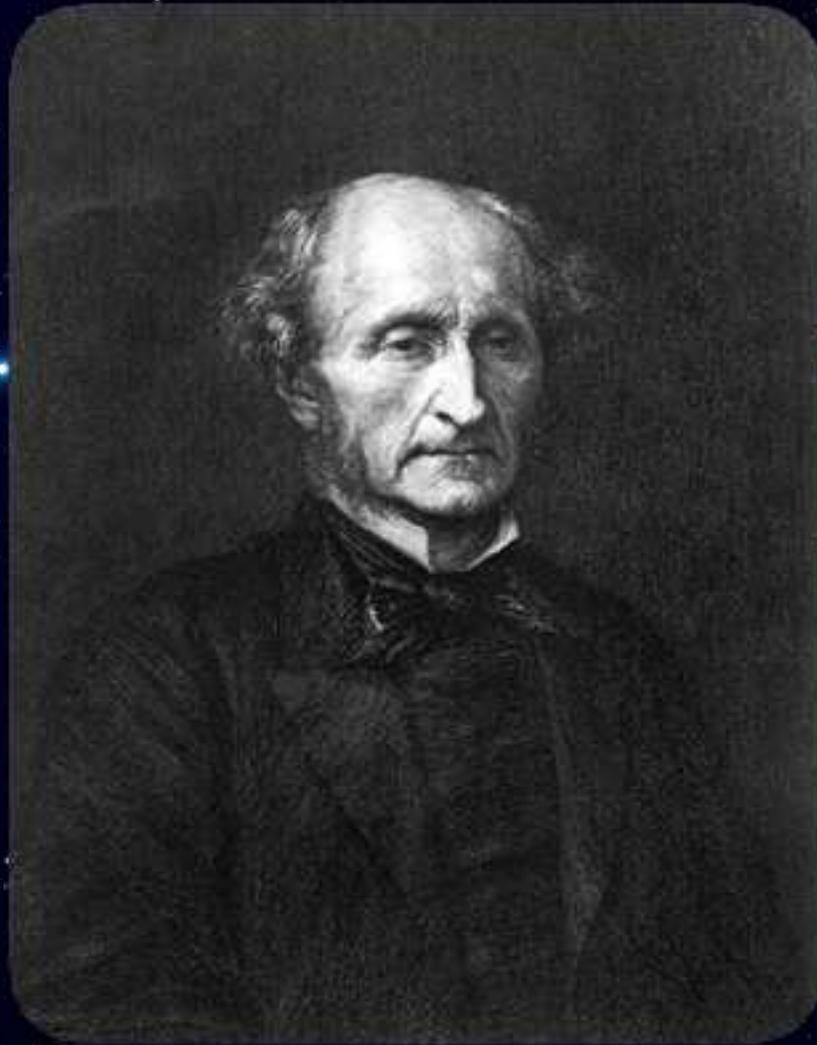
mistakes happen



future
consequences
unknown



think about
a measure of utility



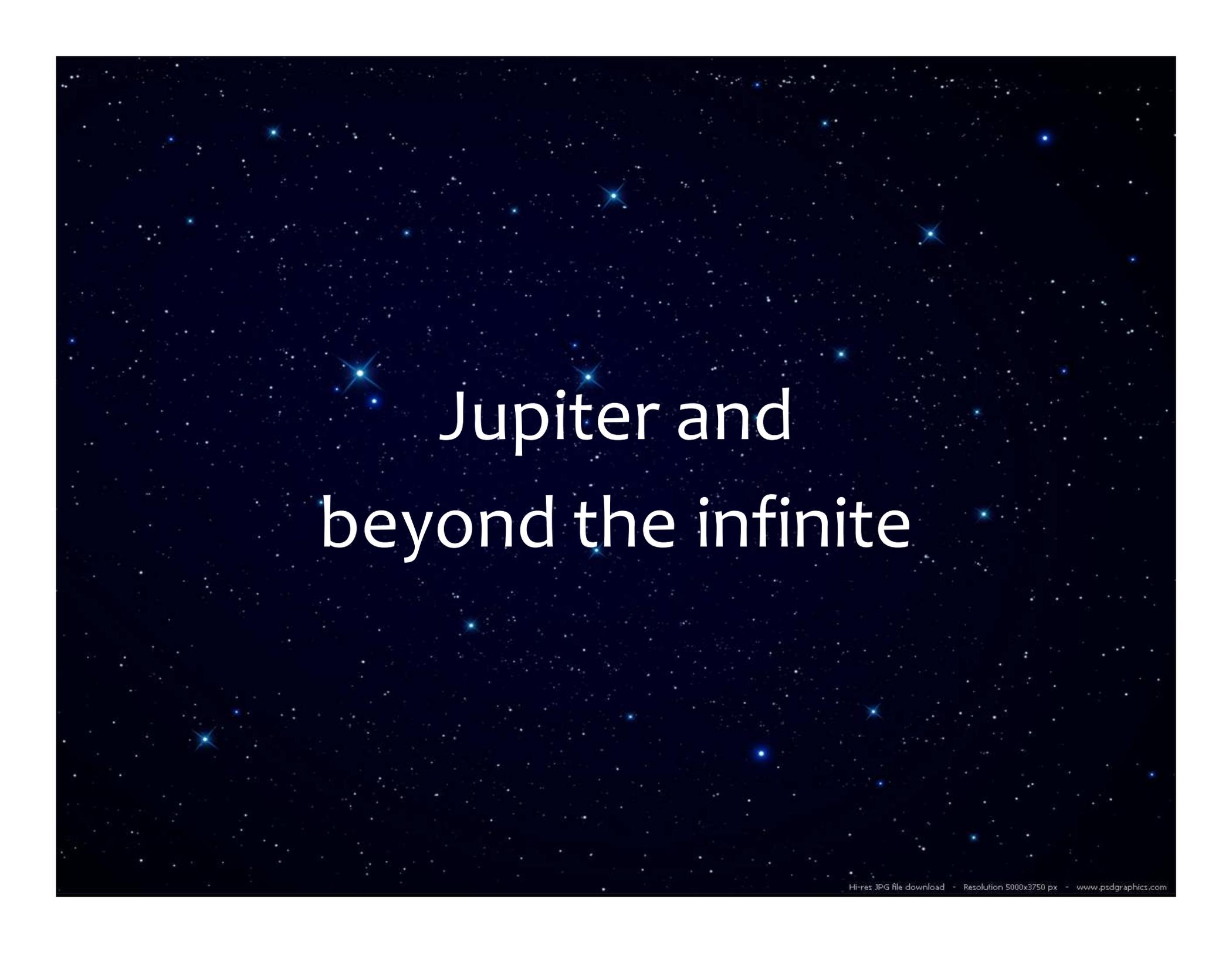
“It is better to be a human being
dissatisfied than a pig satisfied”

– JS Mill, *Utilitarianism*, 1861

utility rule:
choose the greater good
for the most people

A dark blue, starry night sky with numerous small white stars and several larger, bright blue stars. In the center of the image, the white text '<4>' is displayed. The background is a dense field of stars, with some larger, brighter stars scattered throughout.

<4>



Jupiter and beyond the infinite



alone

in

space

The image features a dark blue, starry night sky background. The stars are of various sizes and colors, with some appearing as bright blue points of light. The word "superuser" is centered in the middle of the image in a clean, white, sans-serif font.

superuser



The image features a dark blue, starry night sky background. The stars are of various sizes and colors, with some appearing as bright blue points of light. The word "accountability" is centered in the middle of the image in a clean, white, sans-serif font.

accountability

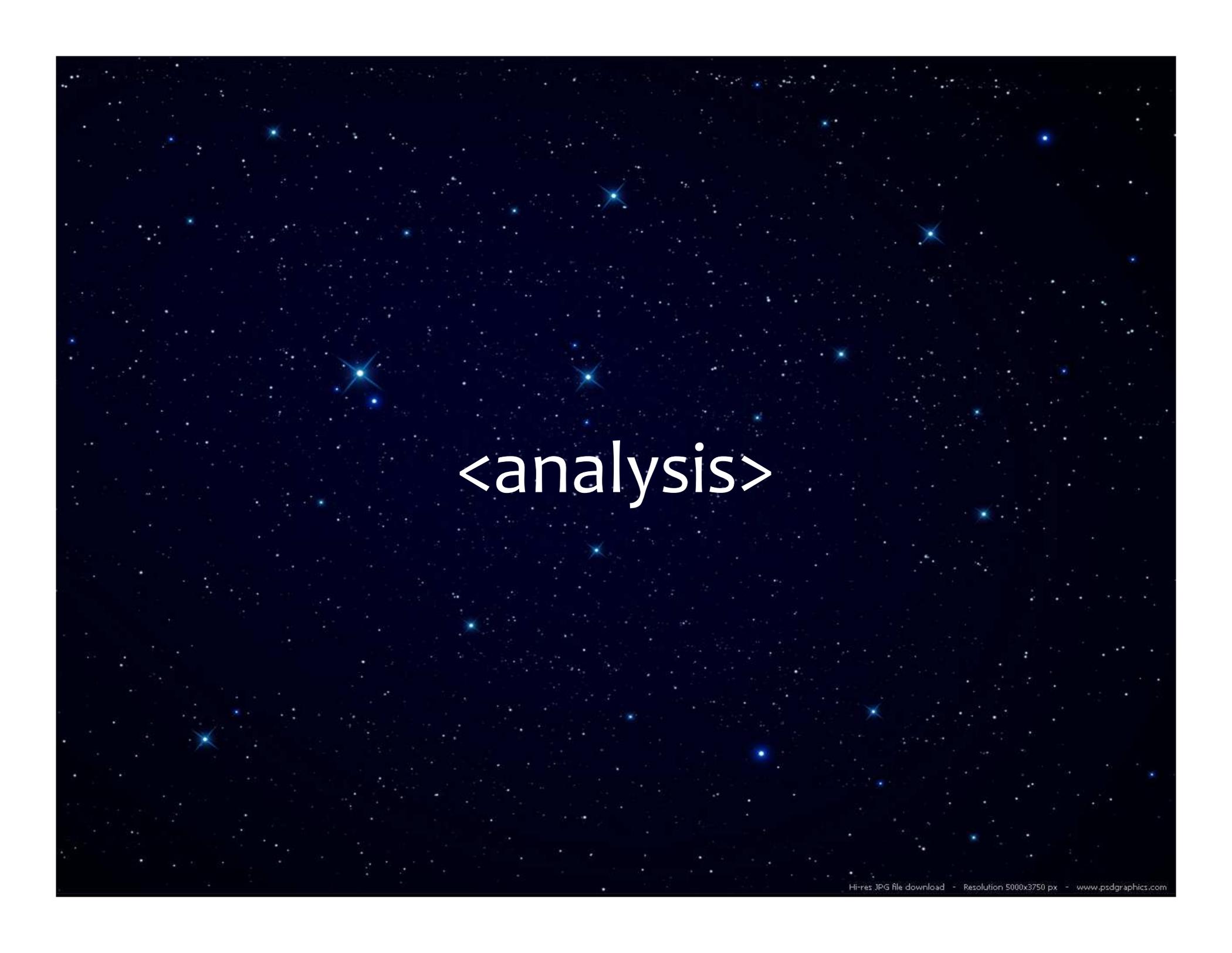
I should have
had the fish



The image features a dark blue, starry night sky background. The stars are of various sizes and colors, including white, yellow, and blue. The text "ultimate authority" is centered in a white, sans-serif font.

ultimate authority



A dark blue starry night sky background with the word '<analysis>' centered in white text. The sky is filled with numerous small white stars and several larger, bright blue stars with prominent diffraction spikes. The text is in a clean, white, sans-serif font.

<analysis>



BEYOND the
INFINITE

$n \rightarrow n+1 \rightarrow (n+1)+1 \rightarrow ((n+1)+1) \dots$





Monolith 4

Super Human Challenge

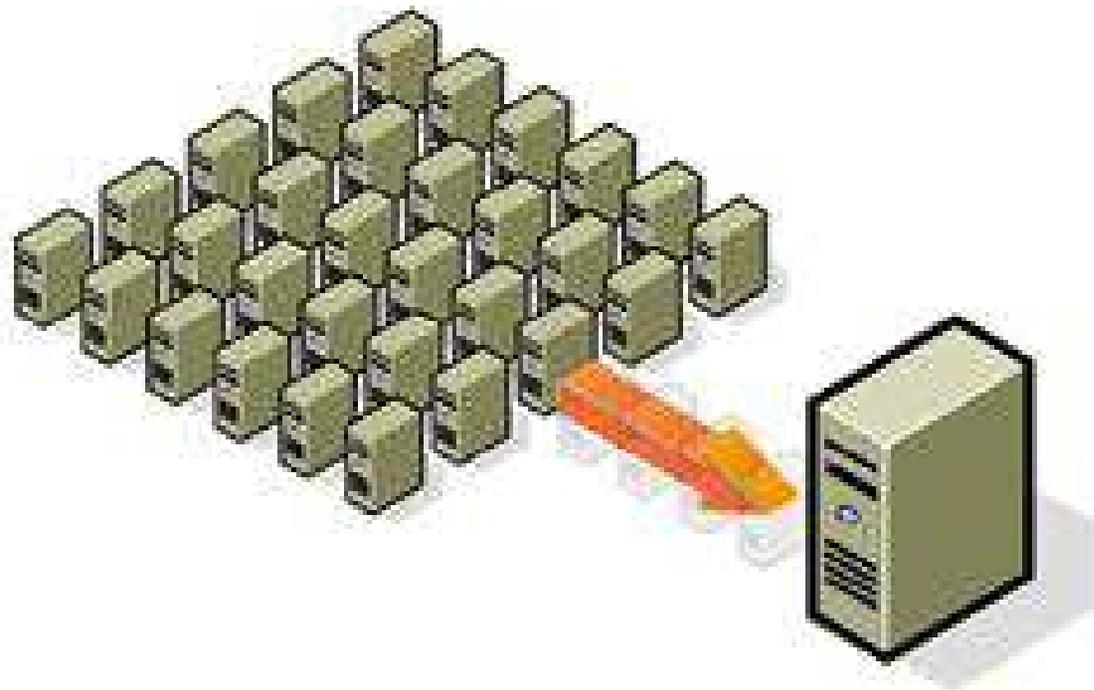


don't rely
(on tools alone)
for evolution



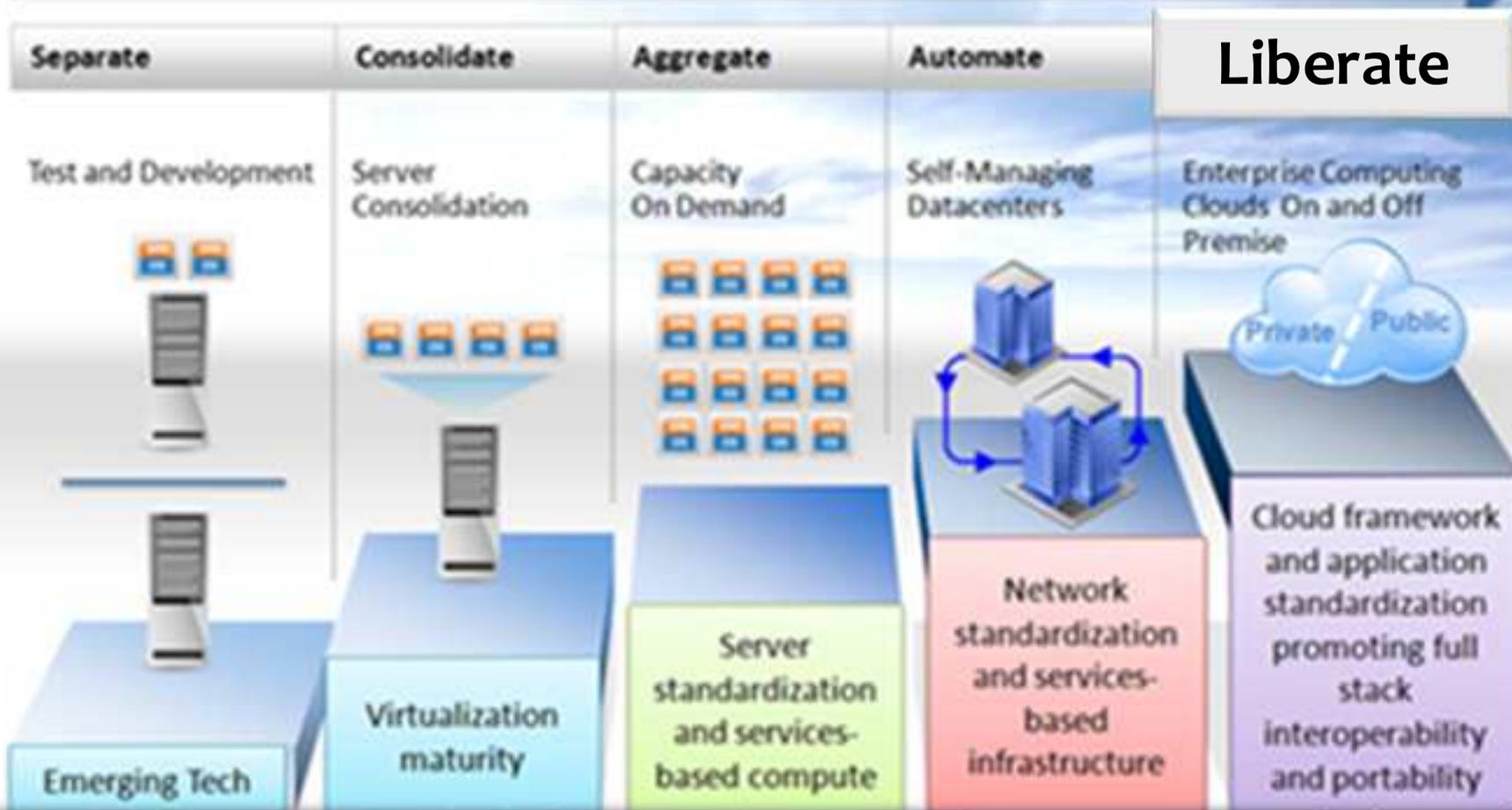
smash the glass

exit the “body”



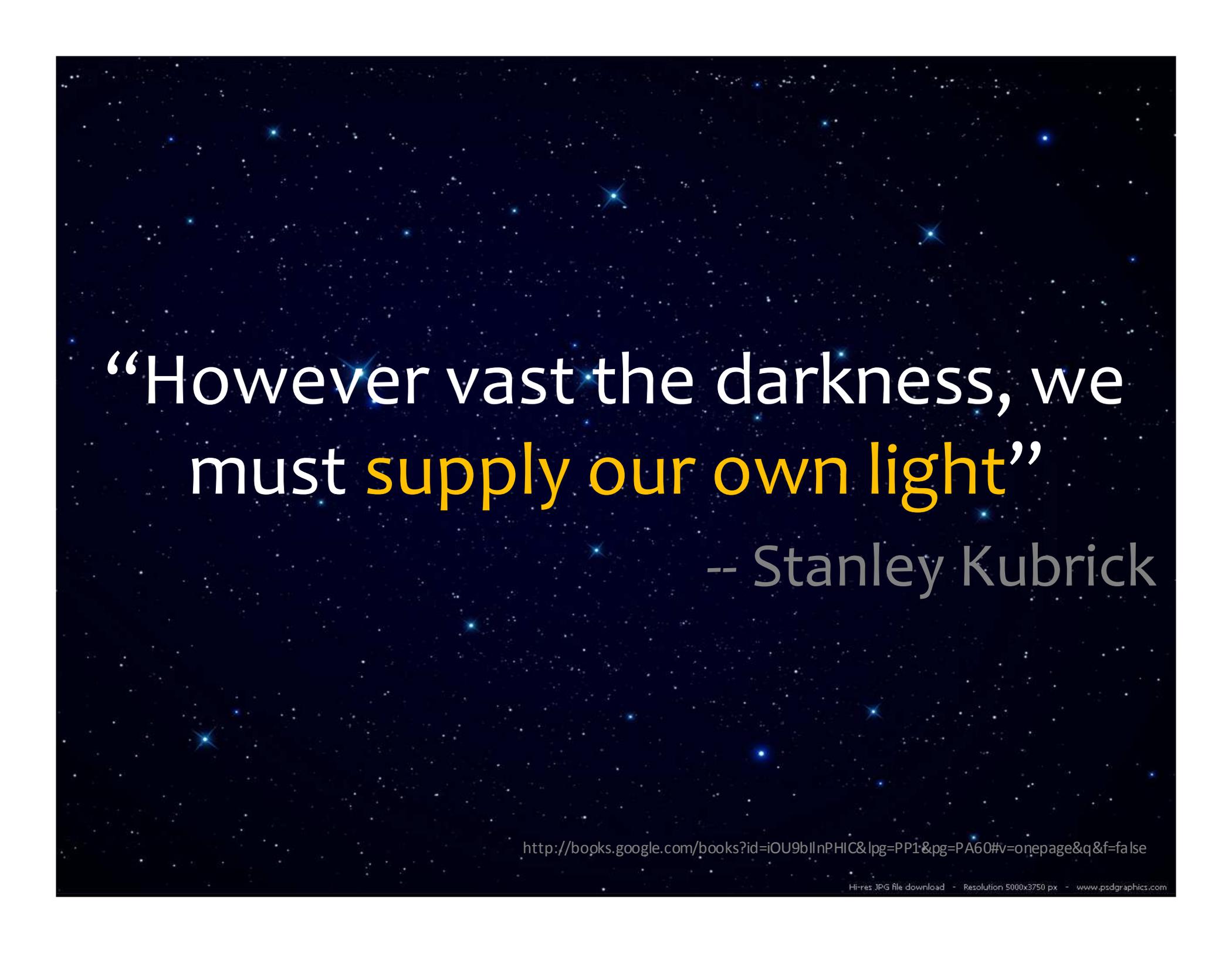


DYNAMIC INFRASTRUCTURE



<http://devcentral.f5.com/weblogs/macvittie/archive/2011/07/20/non-disruptive-does-not-mean-no-impactful.aspx>



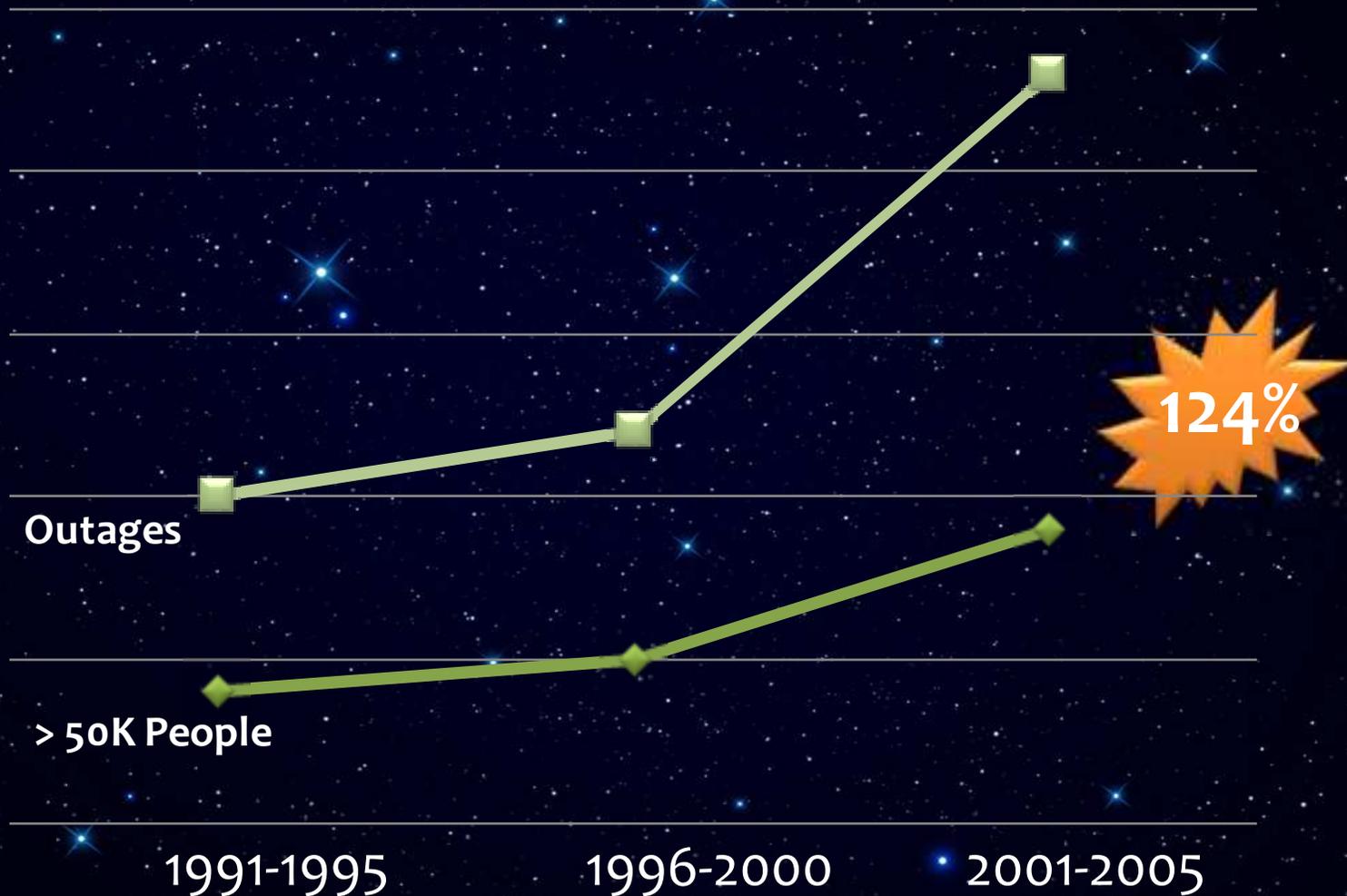


“However vast the darkness, we
must **supply our own light**”

-- Stanley Kubrick

<http://books.google.com/books?id=iOU9b1lnPHIC&lpg=PP1&pg=PA60#v=onepage&q&f=false>

US Non-Disaster Blackouts





elastic
resilient
inexpensive



Customer Application

CLI SDK API GUI

Metering

Deployment

eMail Messaging Office Publishing Finance Staffing

Network
 Compute
 Storage

Access Controls



DL data liberation

Search this site

- ▼ The Data Liberation Front
 - FAQ
- ▼ Google Takeout Products
 - Buzz
 - Contacts
 - Google+ Streams

This site is a central location for information on how to move your data in and out of Google products. Welcome. Click on any product link on the left hand side for more information on how to liberate your data from (or to!) that product.

In June of 2011, the Data Liberation Front announced their first revolutionary product. Read more on our [Google Takeout](#) page.

for the past 12 months:

who had access?

what did they access?

where was it accessed?

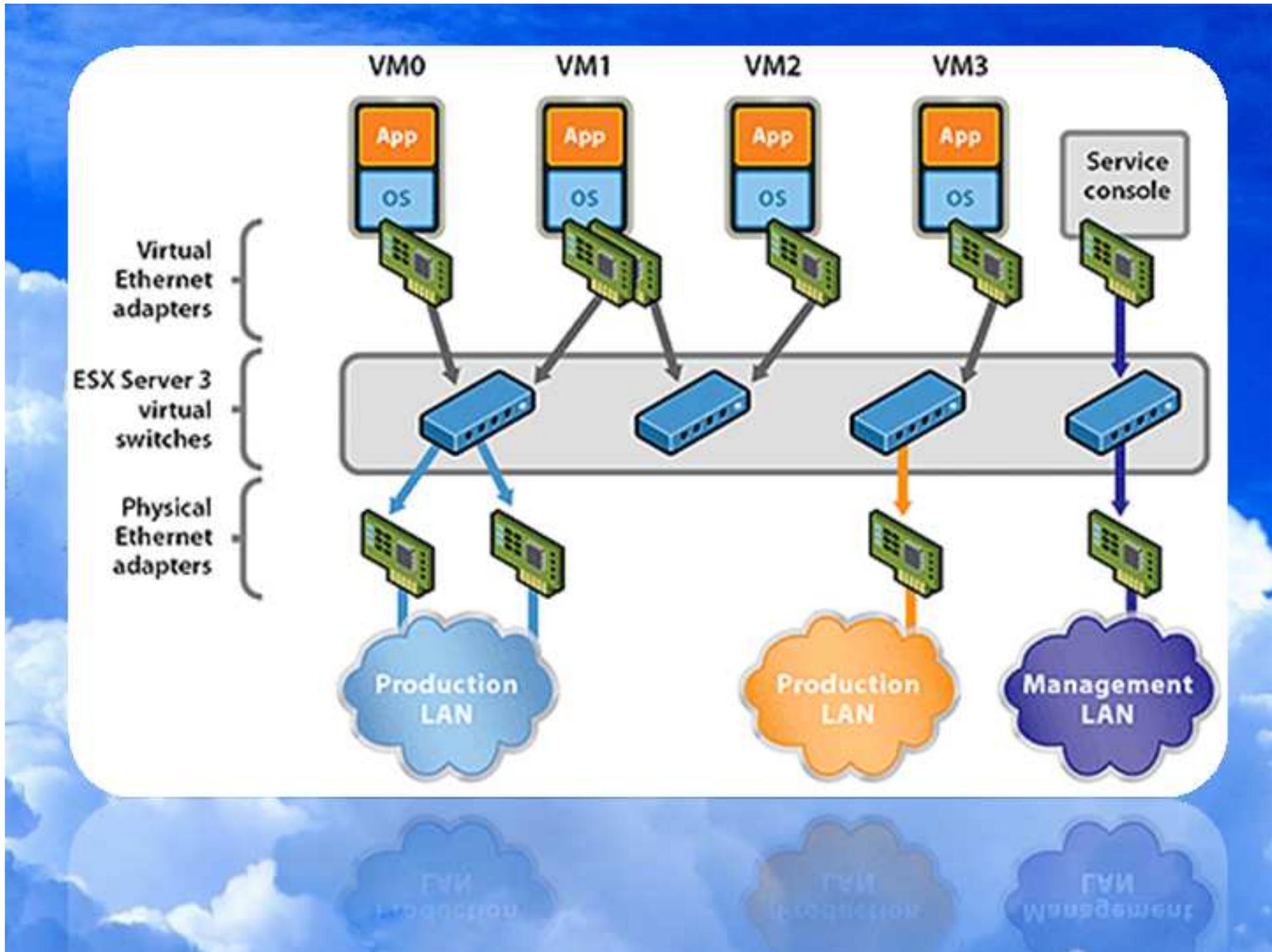
when was it accessed?

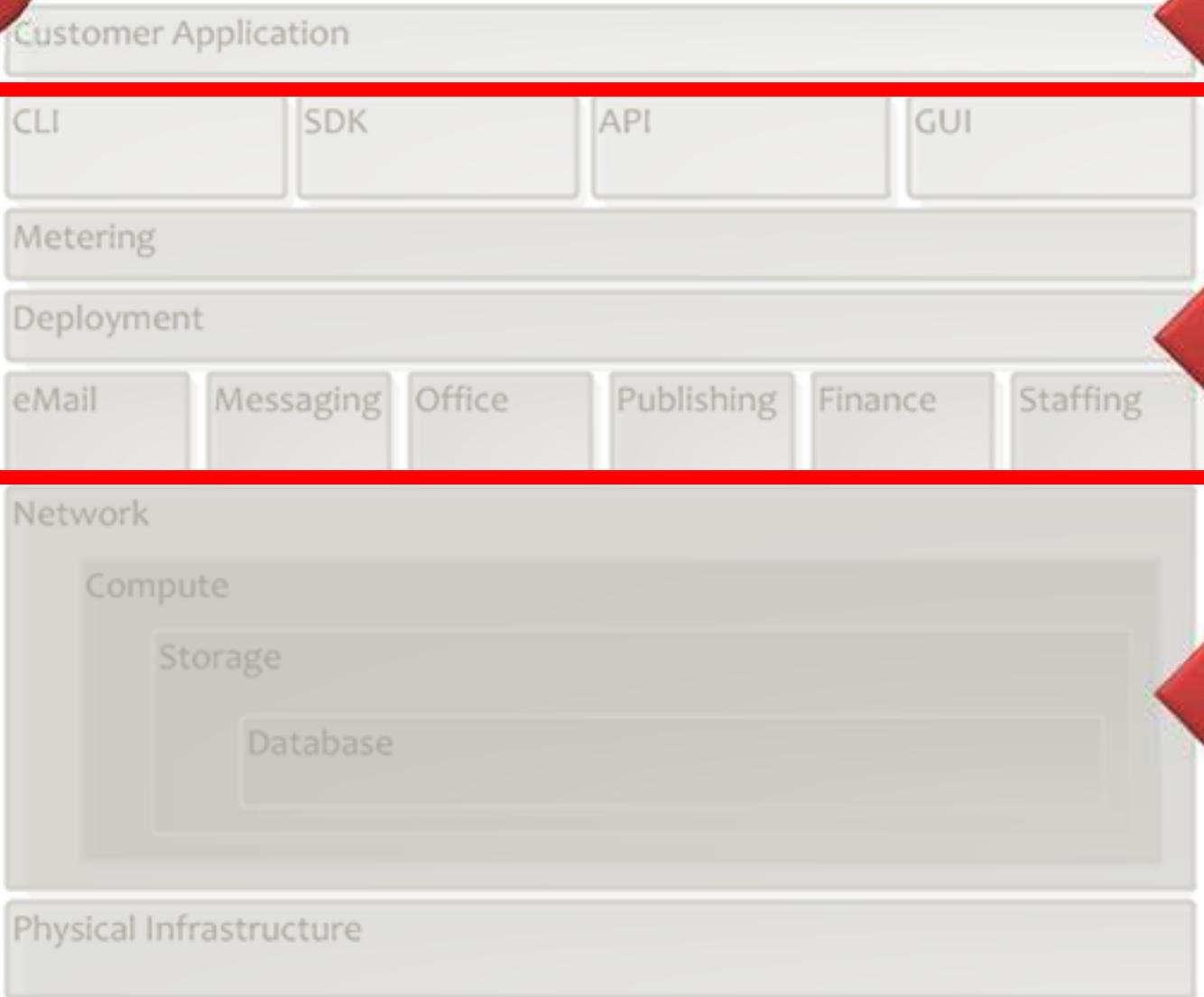


Ready to be
Liberated?

Countermeasures to a central nervous system:

- Tokens
- Dead-drops
- Encryption...







protect (EKMI)

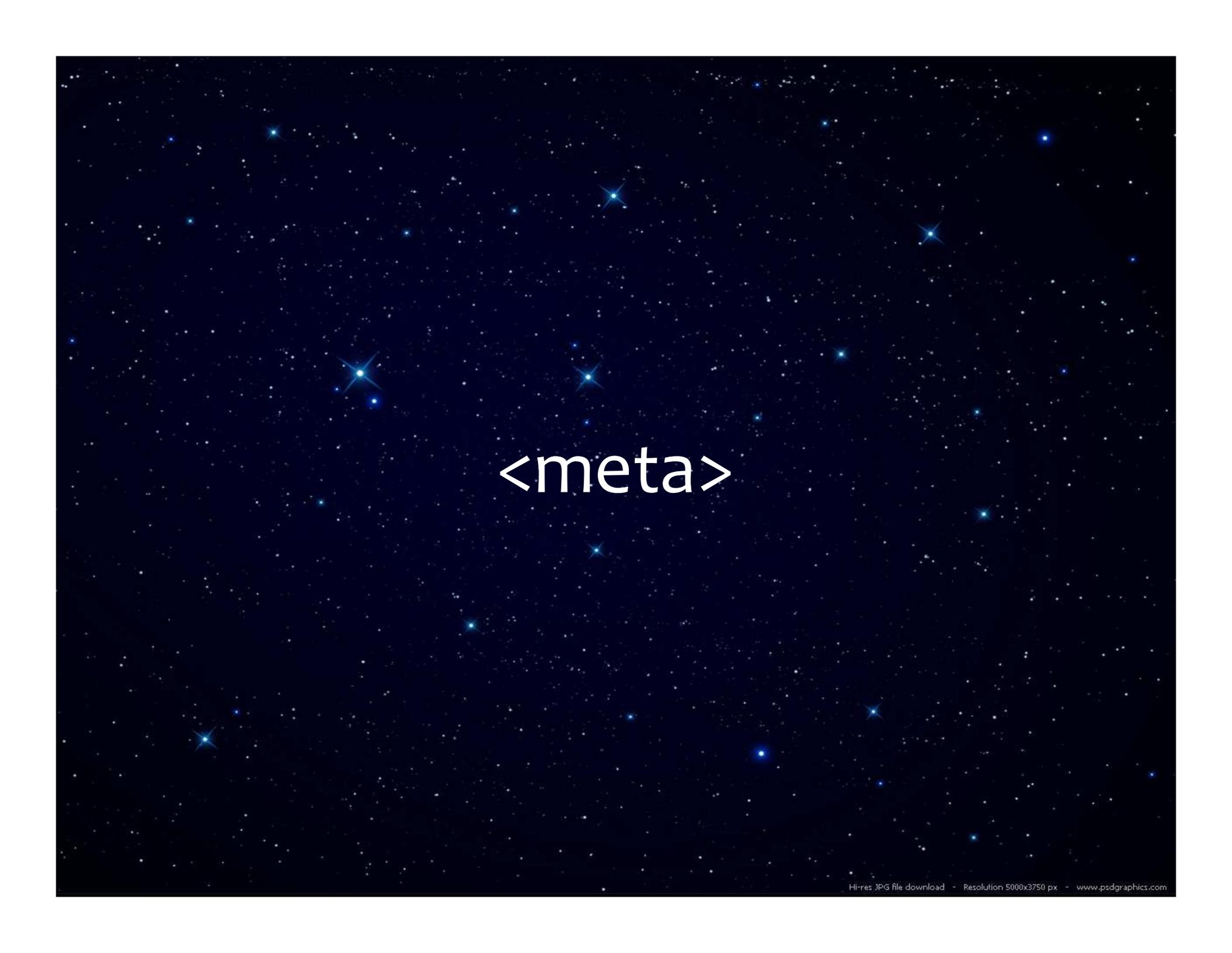
test (SCAP)

verify (CEE)

deploy (OVF)

...



A dark blue starry night sky background with the text '<meta>' centered in white. The sky is filled with numerous small white stars and several larger, bright blue stars with four-pointed diffraction patterns.

<meta>



utility and resilience:
fuel and water

“...majority of convoys going to forward areas are bringing **fuel and water**.

Fuel ops are very **vulnerable to attack**... 75 percent of our energy is consumed by our tactical groups, and only 25 percent by our shore installations.”

-- Chris Tindal, US Navy

The image features a dark blue, starry background. The stars are of various sizes and colors, with some appearing as bright white or light blue points and others as smaller, fainter specks. The word "fuel" is centered in the image in a white, lowercase, sans-serif font. The overall composition is simple and visually appealing, with the text standing out clearly against the starry backdrop.

fuel

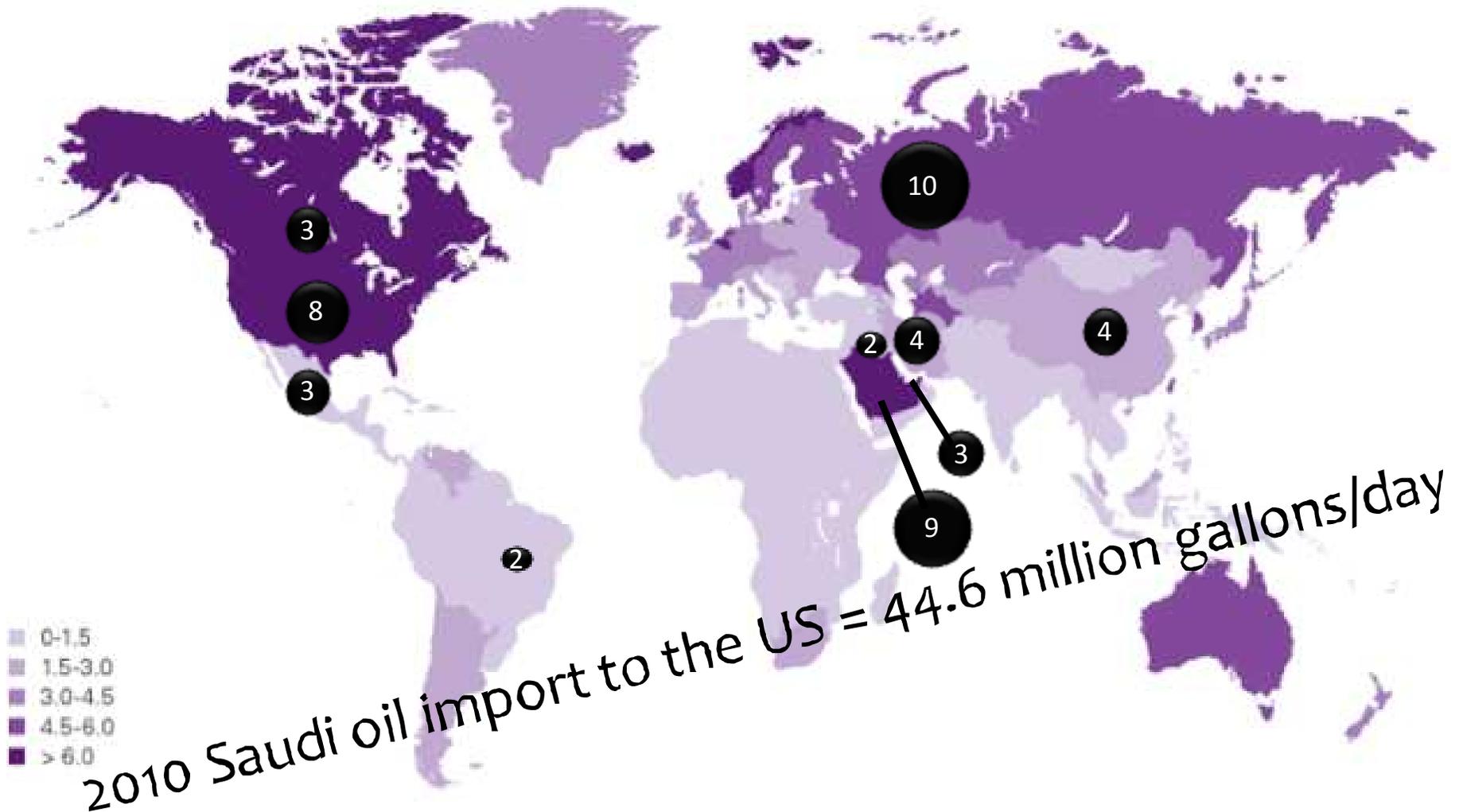
“By 2020, our target is fifty percent of energy from **alternative sources**, and we have a mandate to **reduce petroleum** use 50 percent by 2015”

-- Chris Tindal, US Navy

2020 goal of 50% =
336 million gallons

Production and Consumption per capita 2009

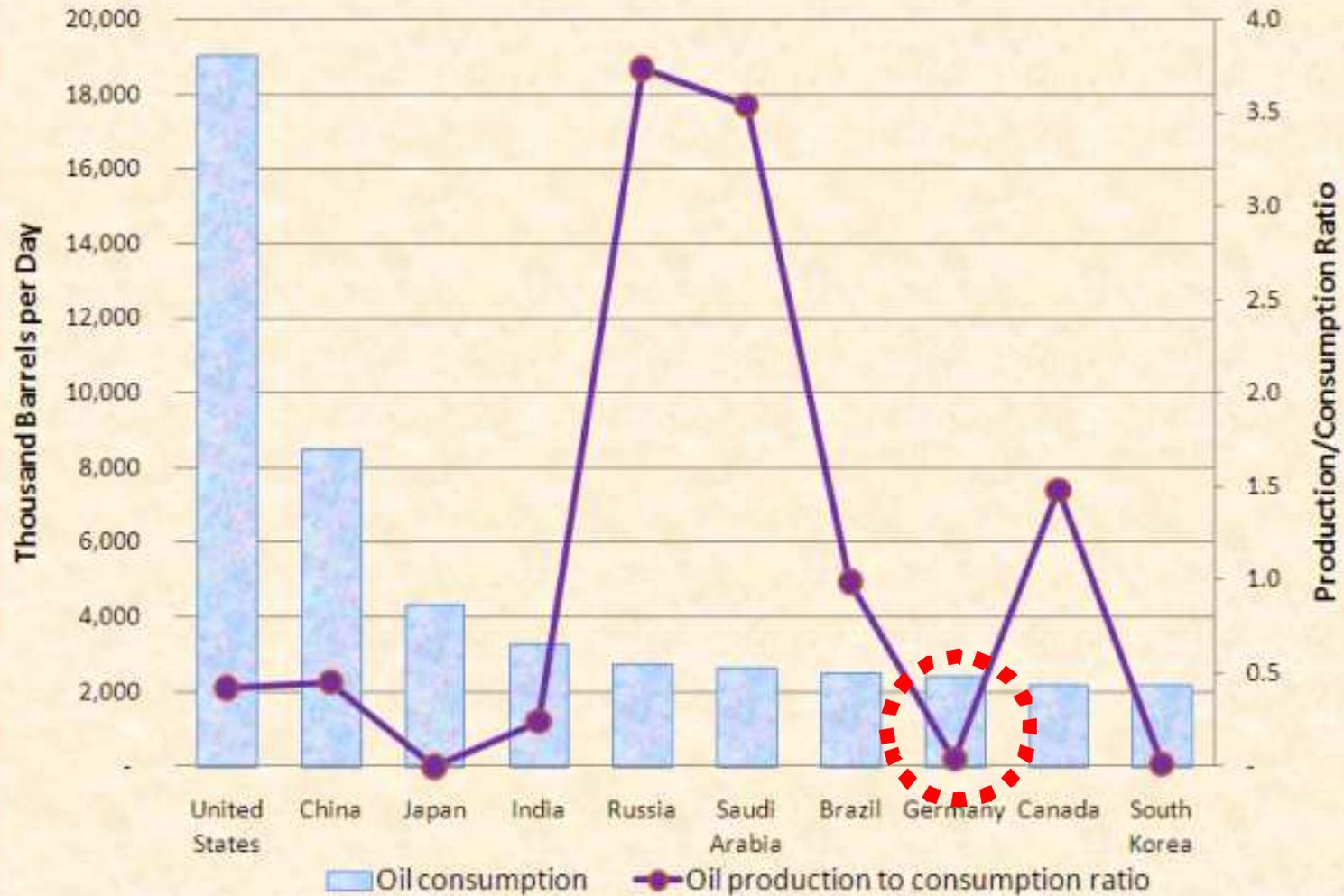
Tonnes oil equivalent



<http://energyforumonline.com/3508/relative-capita-primary-energy-consumption-region-2009/>

<http://energyforumonline.com/4439/10-largest-oil-producers-2009-production-reserves-production-ratios/>

10 Largest Oil Consumers: 2009 Consumption and Production to Consumption Ratios

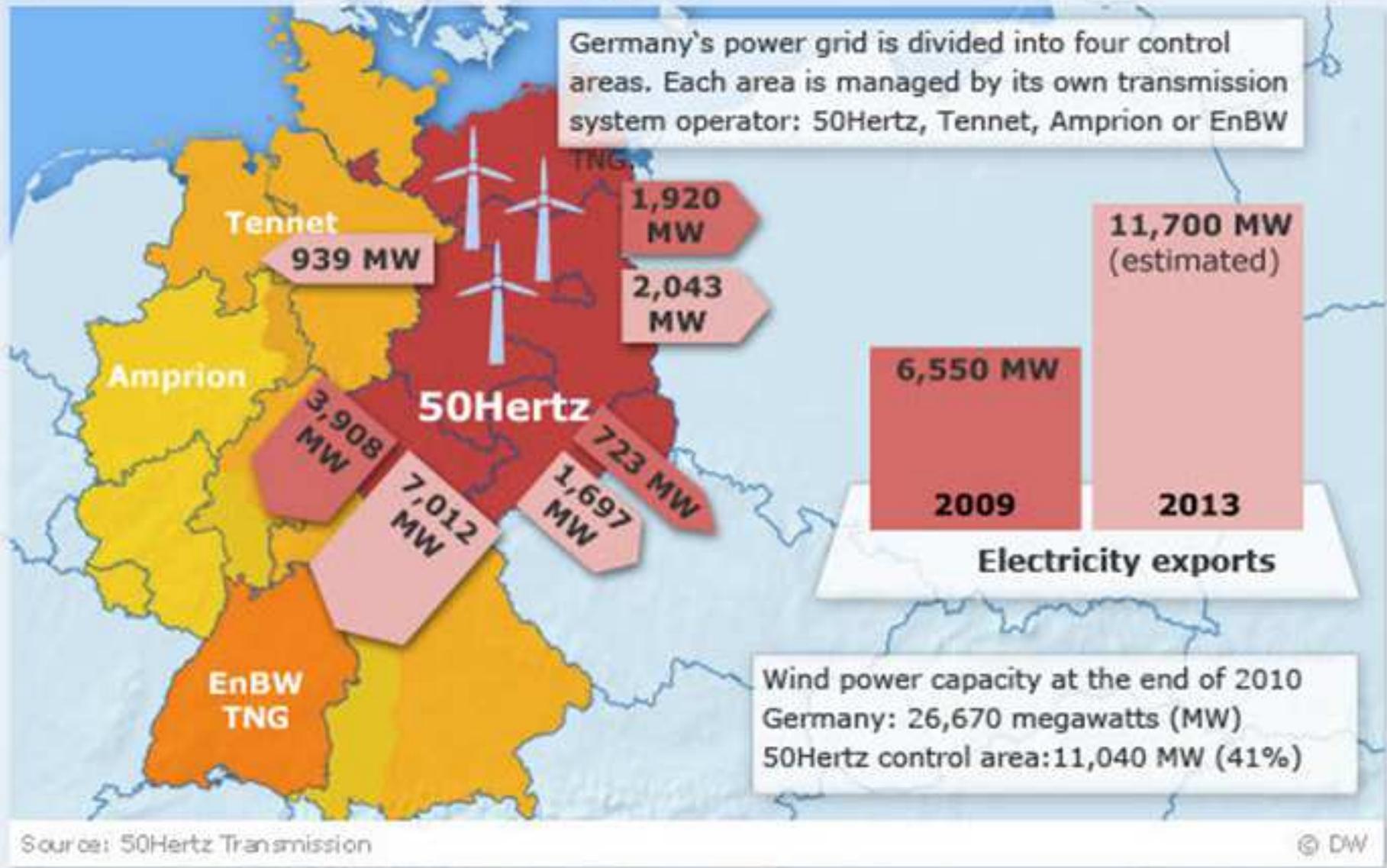


Data source: ENI



alternative sources

Eastern German wind energy exports

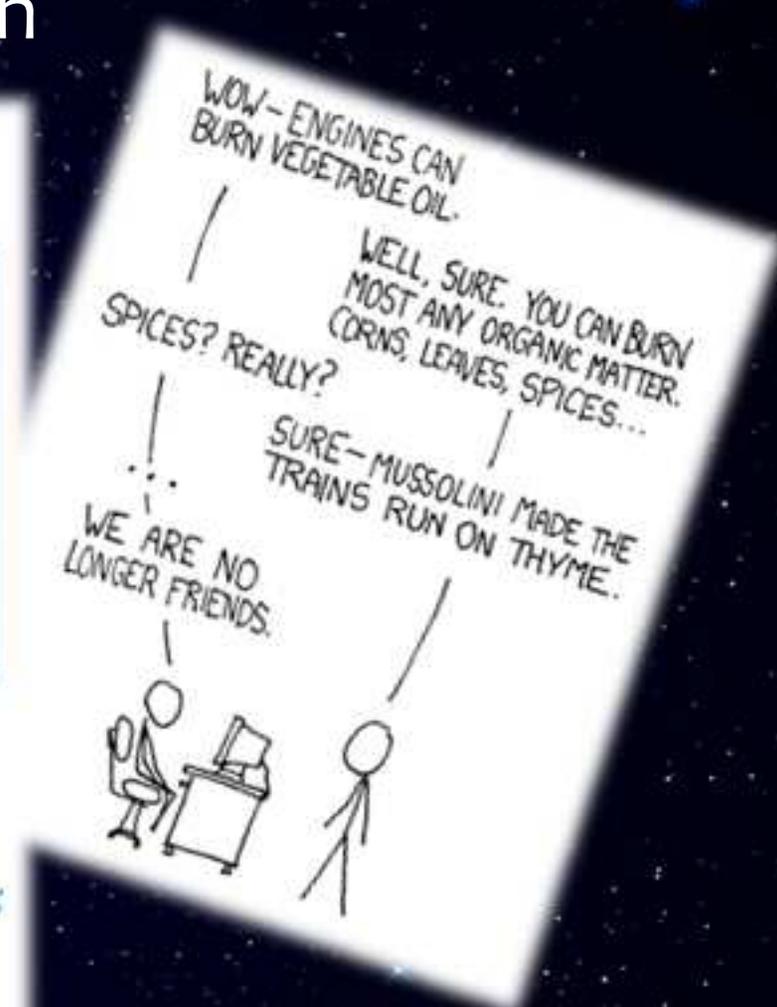
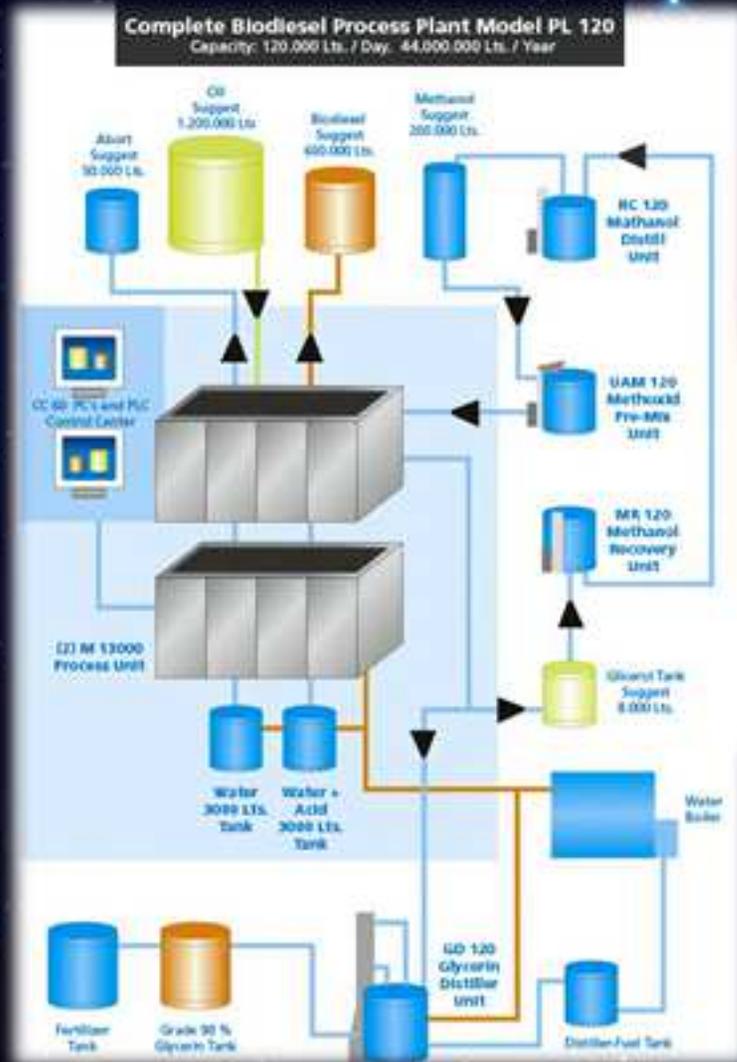


2020 goal of 336 million gallons

- 60% US **wastewater** = 700 mil gallons biodiesel
- 100% US **waste grease** = 350 mil gallons biodiesel



1 million gal/month



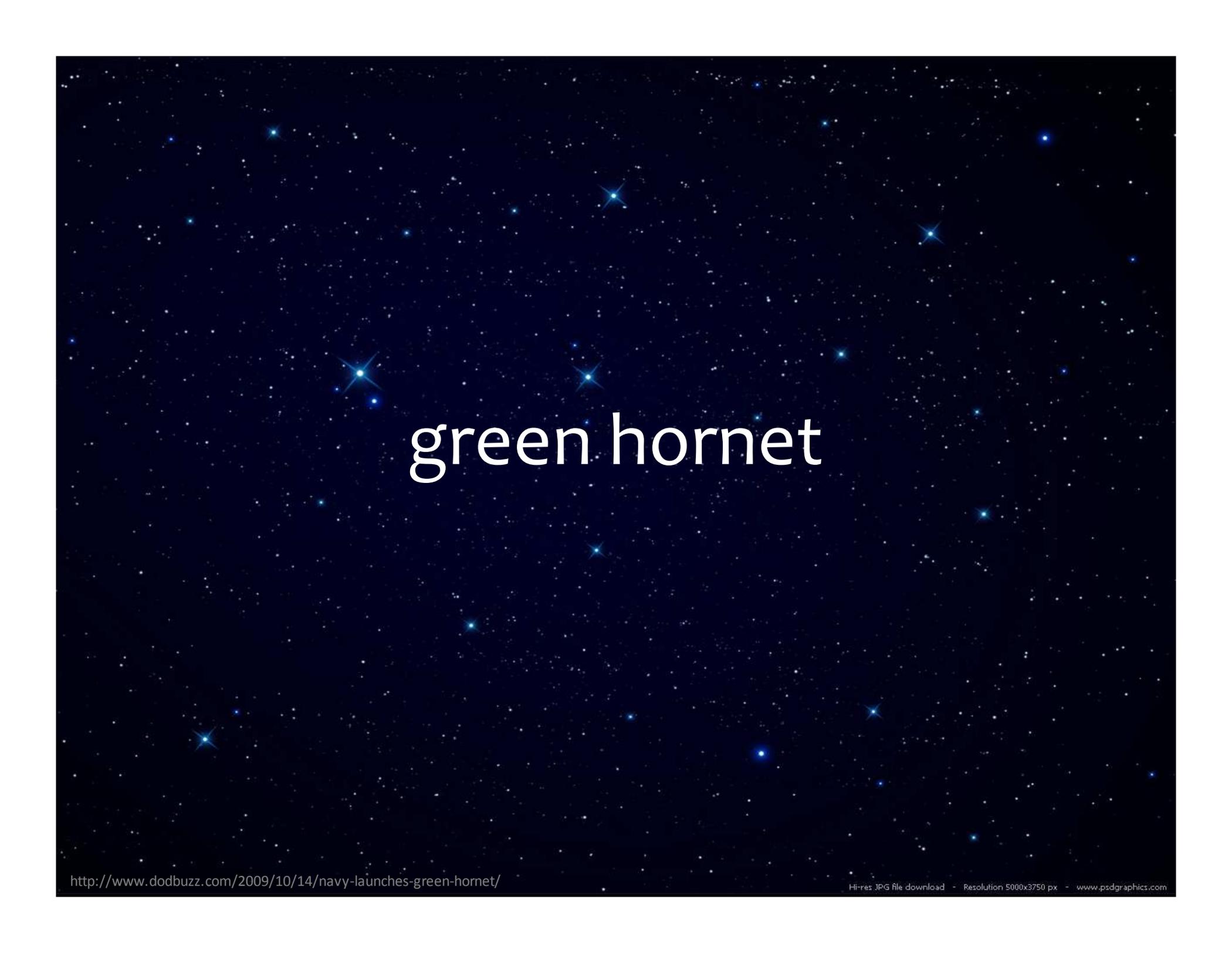
<http://xkcd.com/282/>
<http://www.biodieselplants.com.ar/home2.htm>

100 lb **waste oil** + 10 lb alcohol = 100 lb **biodiesel** + 10 lb glycerol



The image features a dark blue, starry night sky background. The stars are of various sizes and colors, with some appearing as bright blue points of light. The text "reduced use" is centered in a white, sans-serif font.

reduced use



green hornet



<http://www.dodbuzz.com/2009/10/14/navy-launches-green-hornet/>

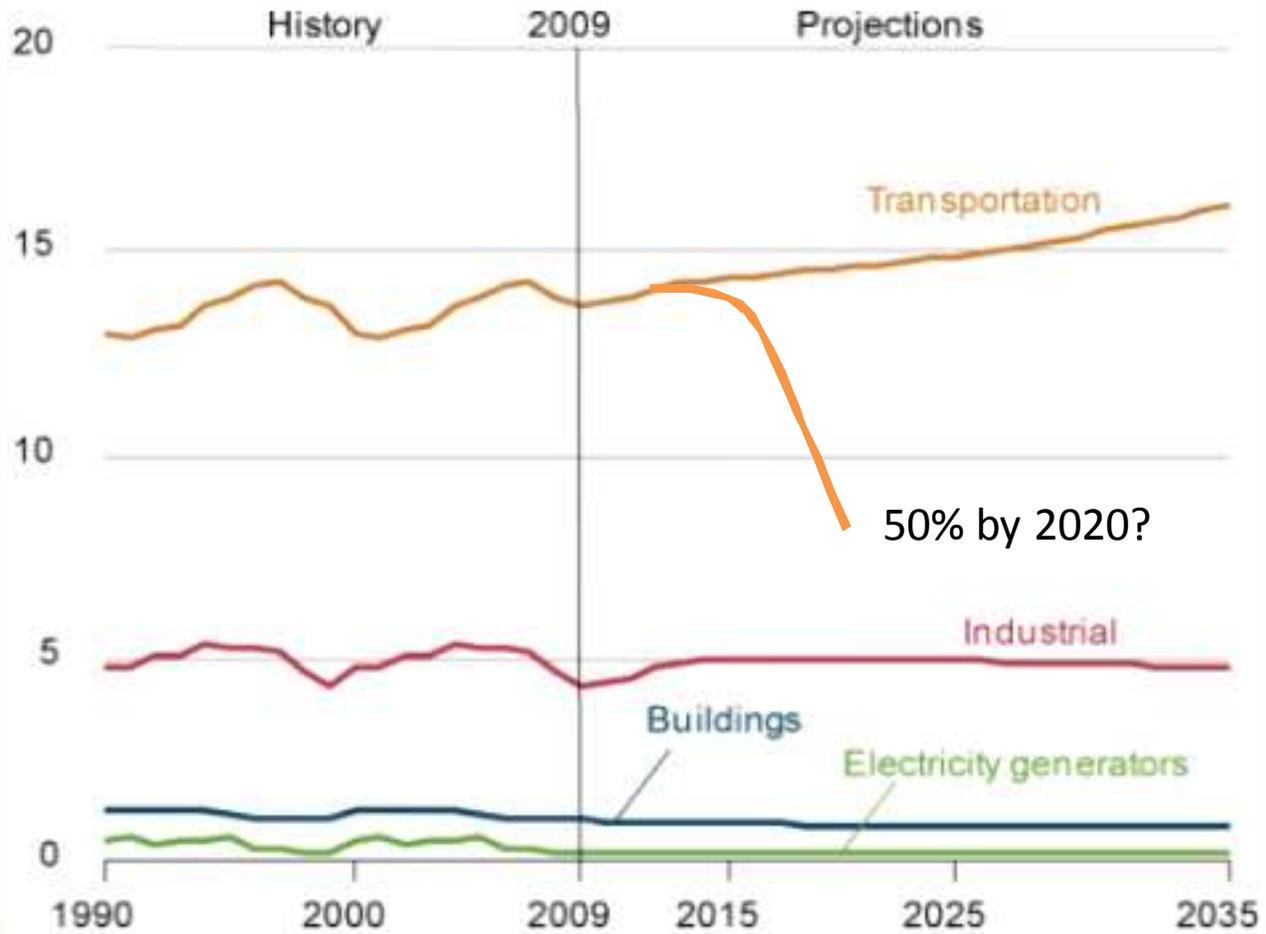
How to PNG file download - Resolution 5000x3750 px - www.psdgraphics.com

2012: 285 hp + 125 mpg

Diesel (472 ft-lbs) = 745 mile range



Figure 93. Liquid fuels consumption by sector, 1990-2035
(million barrels per day)



A dark blue starry night sky with the word "water" centered in white text. The background is filled with numerous small white stars and several larger, bright blue stars with four-pointed diffraction patterns. The word "water" is written in a clean, white, sans-serif font, centered horizontally and vertically on the page.

water

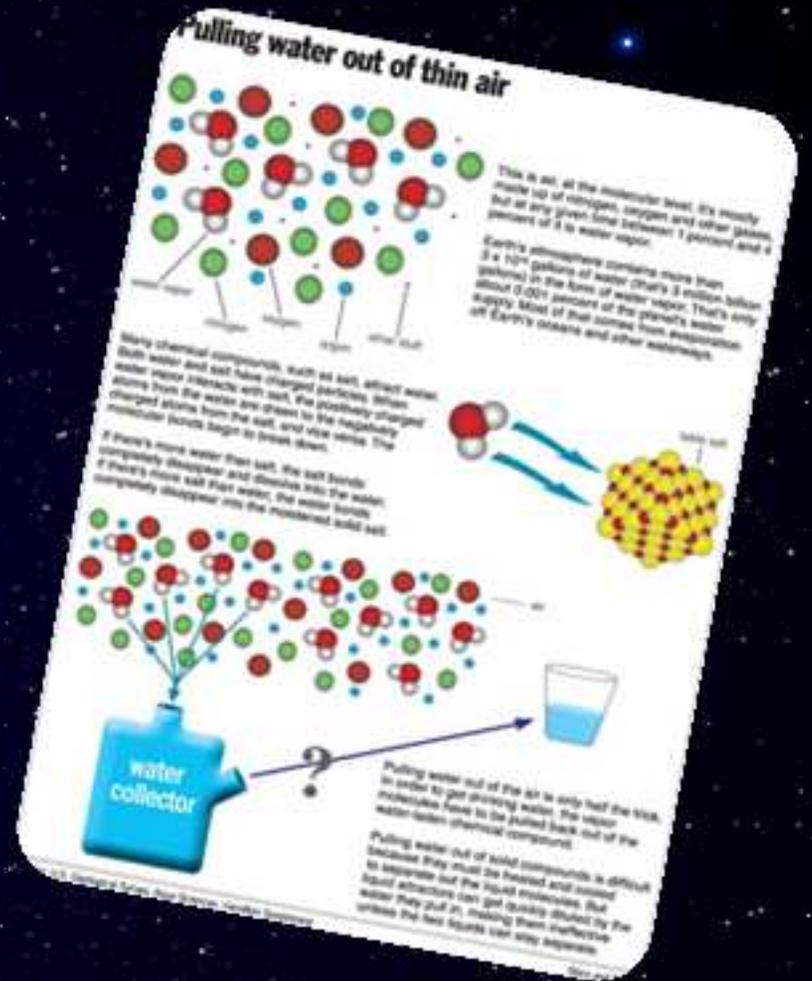
2006 USA TARDEC

(Tank Automotive Research,
Development and Engineering
Center)

AIR

- In Vehicle = 2.5 Gal/Hr
- Trailer = 25 Gal/Hr

40% daily unit water needs





elastic
resilient
inexpensive



wind

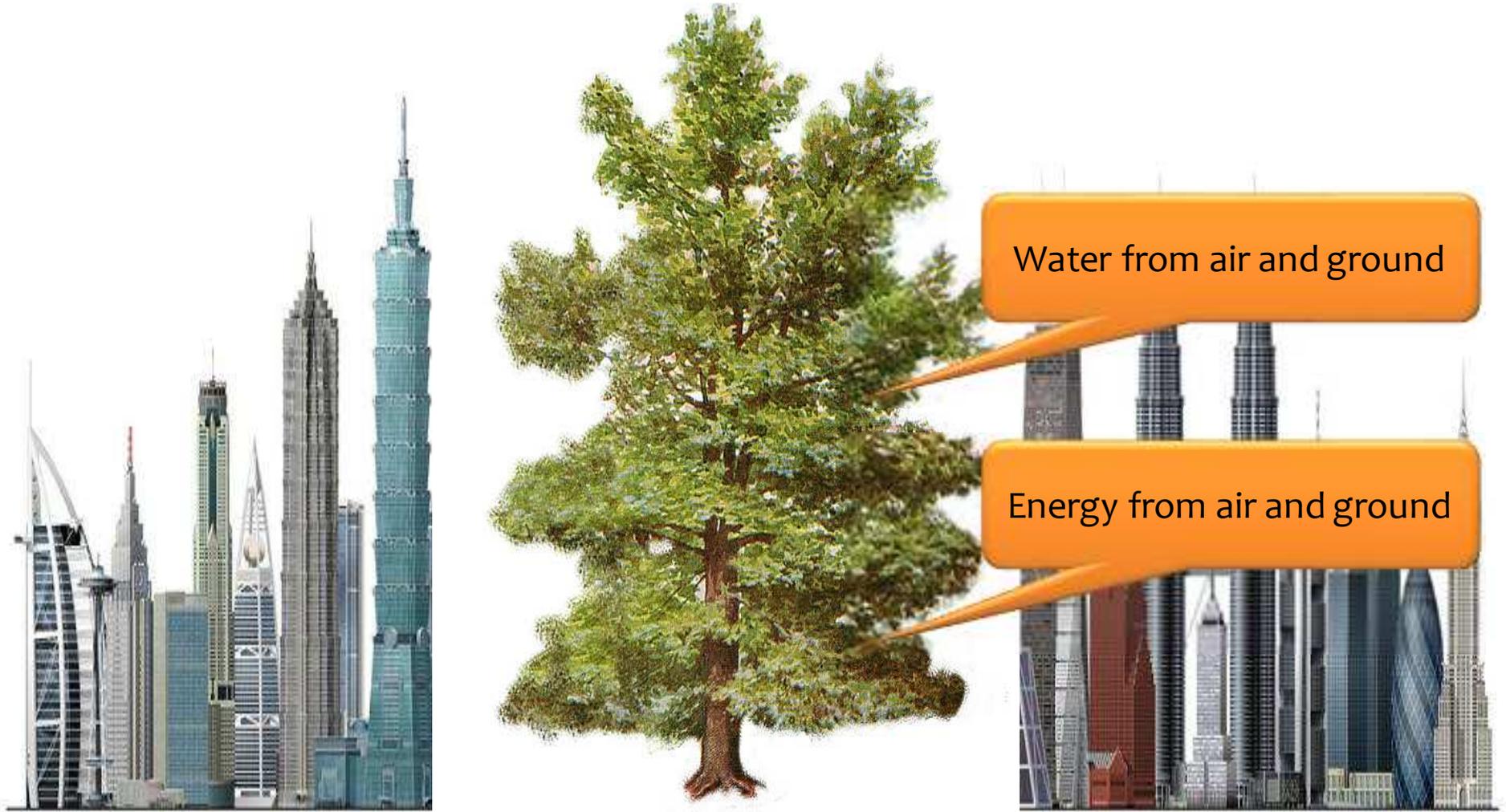
electronics

solar pannel

wind turbine

city power line





energy and water



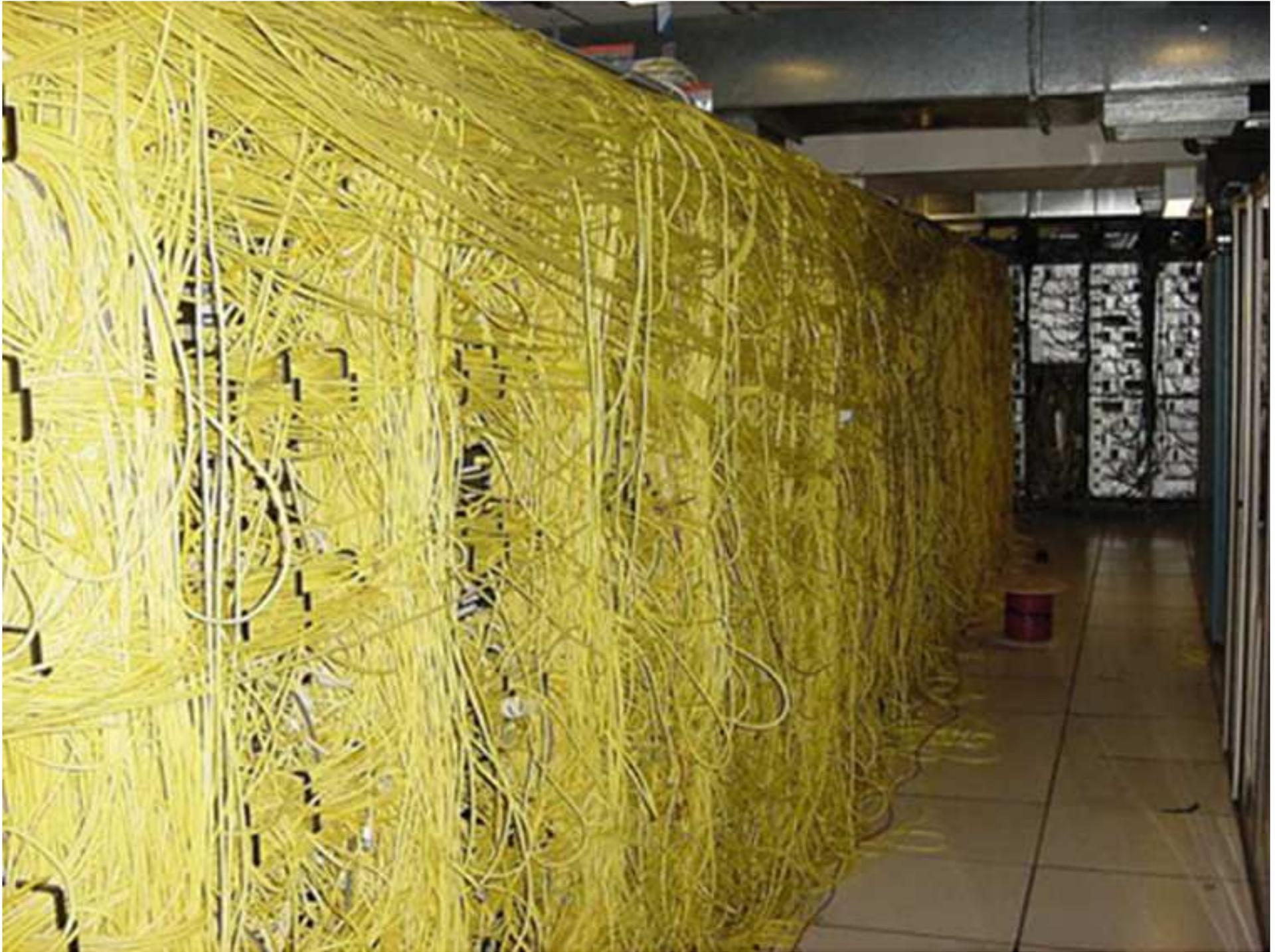
Water from air and ground

Energy from air and ground

“utility space”
Multi-tenant, Virtual

A dark blue starry night sky with the word "relics" centered in white text. The background is filled with numerous small white stars and several larger, bright blue stars with four-pointed diffraction patterns. The word "relics" is written in a clean, white, sans-serif font, centered horizontally and vertically on the page.

relics









got root?

Thanks for coming!



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@daviottenheimer