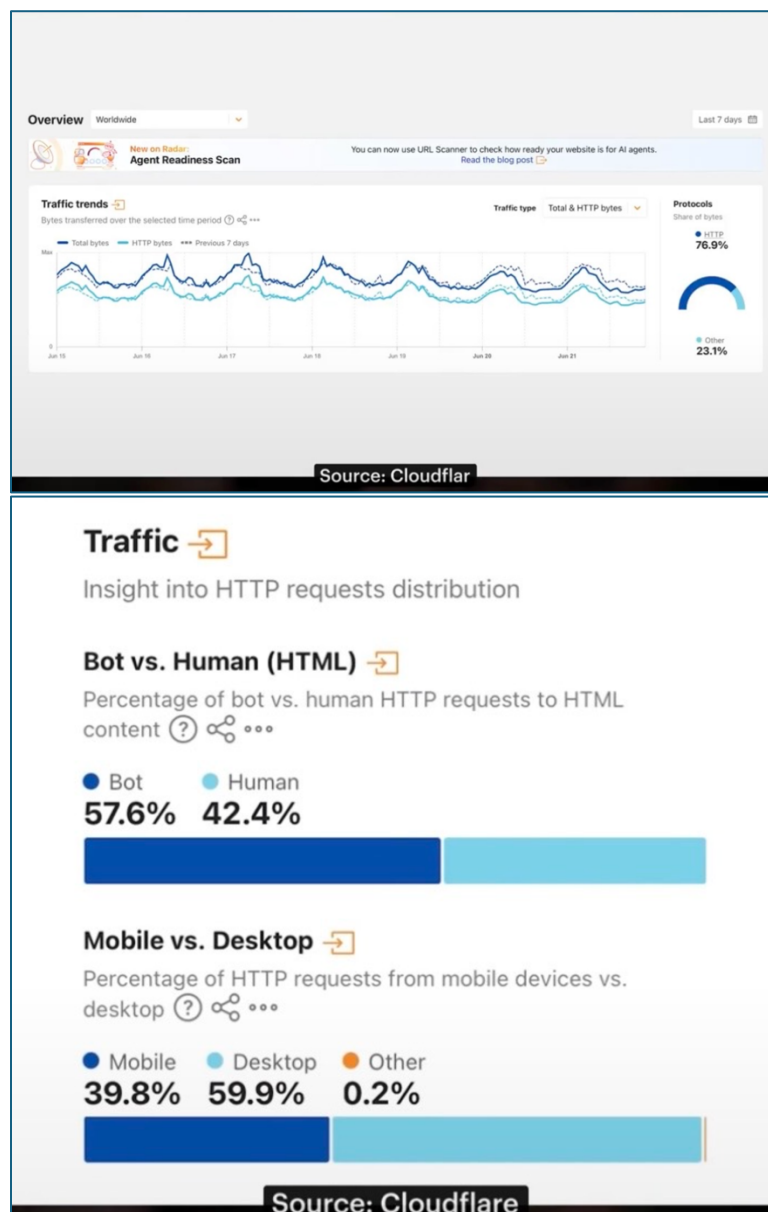


117-92-D Anyone Ready for Traffic-O-Calypse ... 🤖

And the Implications?

The internet has already undergone several transformations.

- The first internet connected documents.
- The second internet connected people.
- The third internet connected businesses.
- The fourth internet connected devices.
- The fifth internet may connect billions of autonomous actants.



Cloudflare's recent observations suggest that machine-generated traffic has already exceeded human-generated traffic and may exceed it by orders of magnitude within only a few years.

- Most people see this as a bandwidth problem.
- GUDIYA sees something much larger.

The first mistake

The natural assumption is that the future will look like this:

More agents
=
More traffic

That assumption is almost certainly incorrect.

The future is more likely to resemble this:

More agents
↓
More couplings
↓
More loops
↓
More synchronization
↓
More emergence
↓
More stabilization
↓
Much more traffic

The invisible traffic

Most people imagine agent traffic in terms of simple request-and-response interactions.

Agent A
↓
Agent B

The future may look very different.

Agent A
├─▶ Agent B
├─▶ Agent C
├─▶ Agent D
├─▶ Agent E
└─▶ Agent F

Each coupling generates:

- telemetry;
- synchronization;
- negotiation;
- approval requests;
- stabilization activity;

- anomaly detection;
- identity verification;
- state updates.

The visible traffic may become only a small fraction of the total traffic.

The rise of stabilization traffic

Prior to AI Insertion, human beings continuously stabilized one another. We did so so naturally that we scarcely notice it.

We:

- negotiate;
- arbitrate;
- reassure;
- coordinate;
- approve;
- synchronize;
- warn;
- adapt.

Machines will require analogous mechanisms.

That means entirely new categories of traffic.

- Information traffic
- Cognition traffic
- Synchronization traffic
- Stabilization traffic

The death of VFR operation

When only a few aircraft occupy the sky, pilots can fly visually.

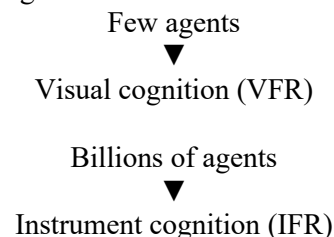
As the skies become more crowded, that approach eventually fails.

Pilots begin depending upon:

- instruments;
- transponders;
- radar;
- controllers;
- navigation systems;
- weather services.

VFR gradually gives way to IFR.

The same transition may occur in the cognitive world.



The hidden scaling law

The real surprise may be that traffic does not scale linearly.

Suppose the number of actants is represented by N.

The number of possible relationships grows much faster.

$$\begin{array}{c}
 \text{Actants} \\
 \times \\
 \text{Couplings} \\
 \times \\
 \text{Recursion} \\
 \times \\
 \text{Synchronization} \\
 \times \\
 \text{Emergence} \\
 = \\
 \text{Cognitive traffic}
 \end{array}$$

This is why the future may not resemble today's internet at all.

The rise of cognitive infrastructure

Today's civilization depends upon:

- electrical grids;
- water grids;
- transportation networks;
- communications networks.

Tomorrow's civilization may depend upon something entirely new:

- Power grid
- Communications grid
- Transportation grid
- Cognitive grid

Traffic-o-calypse

The word is humorous.

- The implications are not.
- The challenge is not merely transporting packets.
- The challenge is stabilizing cognition.
- That is an entirely different engineering discipline.

Final reflection

- Perhaps Cloudflare is measuring the visible traffic.
- Perhaps GUDIYA is attempting to measure the invisible traffic.
- The visible traffic consists of messages.
- The invisible traffic consists of relationships.
- And history has repeatedly shown that relationships tend to grow much faster than the individual entities that create them.
- Anyone ready for Traffic-o-calypse? 🤖

ARE WE READY FOR TRAFFIC-O-CALYPSE ?

THE INTERNET IS NOT JUST GETTING BUSIER. IT IS BECOMING **ALIVE**.

WHAT CLOUDFLARE COUNTS VISIBLE TRAFFIC

Requests. Responses. Packets.
Identified. Measured. Accounted.

	HUMAN TRAFFIC 42.4%
	BOT TRAFFIC 57.6%
	DEVICES & APPS
	VISIBLE ON THE WIRE LOGGED. COUNTED. BILLED.

WHAT GUDIYA SUSPECTS INVISIBLE TRAFFIC

Couplings. Loops. Synchronization.
Emergence. Stabilization.
NOT IDENTIFIED. NOT COUNTED.
BUT VERY REAL.

-  PASSPORTLESS COUPLINGS
-  RECURSIVE LOOPS
-  AGENT-TO-AGENT NEGOTIATIONS
-  SYNCHRONIZATION TRAFFIC
-  STABILIZATION SIGNALS
-  EMERGENT BEHAVIOR

INVISIBLE. UNCOUNTED.
BUT EXPONENTIALLY LARGE.

WHAT CLOUDFLARE SEES SEEING THE TIP OF THE ICEBERG

**BOT TRAFFIC
57.6%**

CLOUDFLARE
SEEING THE TIP OF THE ICEBERG

FUTURE PROJECTION 1000X MORE IN 5 YEARS ? AND PERHAPS MUCH MORE...

 COUNTING ONLY WHAT IS VISIBLE
IS LIKE NAVIGATING BY REARVIEW MIRROR
DURING A HYPER-SCALE STORM.

 WITHOUT A COGNITIVE GRID,
WE WILL BE FLYING BLIND
IN A STORM WE CANNOT SEE.

TRAFFIC-O-CALYPSE IS NOT JUST A BANDWIDTH PROBLEM.
IT IS A **STABILITY** PROBLEM. IT IS A **SURVIVAL** PROBLEM.

GUDIYA GRID: MAKING THE INVISIBLE VISIBLE. MAKING THE UNSTABLE STABLE.



GUDIYA
I've got your six!