

# Before the Market Names the Primitive

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Internet primitives are usually recognized after the system breaks without them.

That is the ordinary sequence. A problem appears. The existing architecture starts to fail under it. Local workarounds emerge. Different actors solve pieces of the same problem in isolation. Eventually, the

missing abstraction gets named, standardized, and treated as obvious infrastructure that no one can imagine having built without.

Packet switching followed that sequence.

IP followed it.

DNS followed it.

BGP followed it.

URI followed it.

None of these began as sacred. The industry did not declare them primitives and then go looking for uses. They became primitives because the system could not scale coherently without the abstraction they supplied. The failure came first. The name came after.

Even transformative communications systems usually inherit a visible predecessor abstraction. The telephone had the telegraph. DNS had host tables. BGP had earlier routing and gateway protocols. The web had the internet beneath it. The old thing failed, strained, or proved insufficient, and the next abstraction became visible by contrast. SSOAR's predecessor components existed everywhere: identity, transport, authorization, logging, orchestration, voicemail, waiting rooms, agent frameworks. The missing abstraction itself had not been named. That is the inversion.

SSOAR does not follow that sequence. SSOAR inverts it.

The constraint was named first. The first embodiment was claimed, examined, and allowed first. Only after that did the market begin producing dense evidence that it was being forced toward the same constraint from many directions at once.

That is the whole of this essay. The ordinary primitive is named after the failure. This one was named before the failure became widespread, and the record now shows it arriving on schedule.

The claim is not merely that SSOAR is primitive. The claim is that the primitive was named, claimed, examined, and issued before the market knew what failure it was trying to describe. Few, if any, internet primitives followed this sequence so cleanly at the moment of their recognition: named first, examined first, issued first, and only then reflected back by converging market failure. The historical posture is the unusual part.

## **What a Primitive Is**

A primitive is not a thing that is important. It is not a thing that is popular. It is not a thing that is commercially dominant.

A primitive is a foundational building block at a particular architectural layer. It is irreducible: it cannot be decomposed into smaller parts at that layer without losing its functionality. It is generative: things are built on top of it. It defines a boundary that the rest of the system depends on.

The formal vocabulary is maintained in the Hermes-Echo glossary (archived at [zenodo.org/records/20355817](https://zenodo.org/records/20355817)), but the operative definition here is simple: a primitive is the irreducible abstraction a system must assume once it reaches the pressure point that exposes it.

A primitive does not require a standards body to exist. IEEE, IETF, and W3C can name a primitive. They can stabilize it, formalize it, and make it interoperable. They do not create a primitive status by proclamation. At the relevant architectural layer, primitive status is functional: the architecture either composes coherently without the abstraction, or it does not.

The question is never whether a committee has blessed the word. The question is whether the architecture can compose coherently without the thing. If it cannot, the thing is a primitive. If it can, the thing is a feature. At a given layer, the answer is binary: one or the other, not both.

This is where loose usage has to be cleared away. HTTP gets treated as primitive-like at the web layer, but the internet does not require HTTP to exist; HTTP runs on deeper primitives. CDMA is a critical access method in certain wireless systems, but it is an applied technique built on deeper signal, spectrum, timing, coding, and transport concepts. A company is not a primitive. Qualcomm is not a primitive. Popular technology is not automatically primitive. Used everywhere is not the same as cannot be composed without.

A primitive is what the architecture cannot avoid once the system reaches the scale, complexity, or mutation pressure that exposes the missing abstraction.

## **The SSOAR Primitive**

The SSOAR primitive is not a session. It is not mutation. It is not authority. It is the irreducible combination of the three.

1. A live interaction exists.
2. A material condition changes inside that interaction.
3. The governing authority survives the change without originating a second independent authority root.

Remove any one and the primitive disappears. A session without mutation is a session. Mutation without a governed session is change. Authority without mutation has no boundary-crossing problem to solve. The primitive exists only when all three are present at once: a live interaction that mutates under continuous authority.

That is the Constraint. In prohibition form:

**Across the boundary of a live interaction, no second independent session-authority root is originated.**

Downstream authority may still move. It may be shared, delegated, routed, transferred, narrowed, expanded, suspended, or revoked. What it may not do is mint a second independent root inside the same governed interaction. It must derive from the original governing authority for that interaction.

That is why this is a constraint and not a feature. A feature says what the system can do. A constraint says what the system must not do. The primitive is defined by the negative limitation, not by a positive method.

**The Authority Enumerating the Facts**

The first issued embodiment of this constraint is Hermes-Echo, United States Patent No. 12,659,408 B2, issued June 16, 2026, with claims 1 through 20 allowed. The embodiment is video communication. The primitive is deeper than the embodiment.

The invention is not “play a prerecorded video when someone misses a call.” The examiner said what the invention was, at the authority-boundary level. Claims 1 through 20 were allowed because the cited prior art did not teach that all routing, streaming, and reply capture operations are executed under a single session authority boundary defined by the established session identifier, and did not teach that no new session authority is created during retrieval or streaming of the prerecorded media file.

That is the record. The examiner did not identify the invention as video voicemail. The examiner identified it at the boundary level: routing, streaming, and reply capture, under one session authority, with no new session authority created.

The international examination reaches the same place. The International Search Report cited only “A” references against claims 1 through 20, and

the Written Opinion found claims 1 through 20 novel, inventive, and industrially applicable. It described a video communication session that is intercepted, a session identifier that maintains continuity through subsequent routing and messaging operations without terminating the session, and every component operating under the same session identifier for the entire interaction.

Novelty and inventive step do not by themselves make a primitive. A feature can be novel without being irreducible. The stronger fact is what the examiner had to articulate in order to allow the claims: the invention could not be described without describing the constraint. The constraint is what distinguished it from everything that came before.

The line has to be drawn cleanly here. The patent record establishes the issued embodiment and the examined constraint. The primitive claim is the architectural conclusion drawn from that record and from the market-convergence evidence, not a label supplied by the USPTO. The examiner determined what the prior art did not teach. What that determination means at the architectural layer is the argument of this essay.

At the relevant layer, the test is binary. Either the architecture can govern mutable live interactions without the abstraction, or it cannot. SSOAR is not primitive because the USPTO said so; it is primitive because that abstraction cannot be removed without the governance failing. The patent record matters because it fixed the first issued embodiment of the constraint before the market broadly named the failure. The rest of this essay shows why the architecture has crossed that threshold.

That is what makes Hermes-Echo the first issued embodiment of the session-authority primitive, and not merely an application of one.

## **Warten and the Pre-Admission State**

Warten shows the same architectural instinct at a different boundary. Hermes-Echo governs mutation inside a live session. Warten governs the state before admission: the waiting room, the queue, the pre-call surface where a participant is not yet inside the main interaction but is already inside a governed boundary.

The authority problem does not begin at admission. The waiting room is not an empty space. It is a governed pre-admission state.

Warten, United States Application No. 19/395,642, has claims 1 through 19 allowed. The Notice of Allowability states that the cited waiting-room and queue-content references did not teach the claimed authorization structure: a content delivery injection server retrieving an access credential or API token provided by the video conferencing system, where that credential authorizes delivery of third-party content through the video conferencing system's waiting-room graphical interface.

That is the point. Warten is not “ads in a waiting room.” It is authorized third-party content delivery into a waiting-room interface, through an authorized delivery boundary. The waiting room becomes an authority-bearing pre-admission state.

Hermes-Echo says a live session can mutate without originating a second independent session authority. Warten says a pre-admission surface can admit third-party content only through an authorized delivery boundary. Together, they show the constraint is not confined to the middle of a call. It governs the boundary states around a live interaction: before admission, during routing, during streaming, during reply capture, during third-party insertion, and onward into handoff and asynchronous response.

## **Autonomy Makes the Constraint Visible**

Autonomy is the clearest forcing function.

A human-in-the-loop system can hide the authority problem because the human re-grants authority at each consequential step. The person reviews. The person approves. The person authorizes the next move. The re-grant happens so often that no one notices it is load-bearing.

Remove the human, and the re-grant disappears. The architecture then has to answer a question it was previously allowed to defer: what carries authority across the transition?

There are two answers, and only two. Either authority remains continuous and governed within the live interaction, or the system creates fresh, independent authority at each machine step and reconstructs what happened afterward from logs, receipts, tool traces, model calls, and audit records.

The second path connects components. It records fragments. It cannot natively prove the governed event because it was never held as a single authority-bearing object. It was scattered across the fragments and reassembled after the fact.

That is where the constraint becomes mandatory. Autonomy does not merely benefit from continuous authority. In any serious system, autonomy requires it. The forcing function is not a preference. It is structure. Once the human re-grant is gone, continuous, governed authority is the only thing left to carry the interaction, and originating new roots at each step is the failure mode dressed as an architecture.

### **The Market Is Specifying the Requirement Without the Name**

The market is not saying SSOAR. That is the wrong claim, and it is not the one being made.

The market is specifying SSOAR-shaped requirements. Session-scoped authority. Runtime admissibility. Provenance. Bounded delegation. Continuity across mutation. Accessibility proved during the interaction rather than being attested afterward. Sovereignty over where and how

state moves. Zero Trust enforcement before the state transition rather than after it. Governable AI capability after deployment rather than only before it.

Each of these is specified in isolation, by a different actor, under a different vocabulary, to solve what looks like a different problem. They share a shape. The shape is the constraint.

The gap they are all circling is the same gap. Most deployed systems govern what happens before, after, or around the live interaction. They do not govern the interaction itself as the authority-bearing object. Identity systems govern before. Logs and audit systems govern after. Agent frameworks and orchestration layers govern around. Nothing in the deployed stack governs the live interaction as it mutates.

That is the architecture gap. SSOAR names the thing that fills it.

## **Why This Matters at Scale**

IoT and IoE do not fail because devices cannot connect. They fail because connected things must be governed coherently as their state changes under them.

A sensor becomes an actuator. A model becomes a decision-maker. A user delegates authority to an agent. A session crosses a jurisdiction. A tool call produces an external effect. An accessibility stream enters the interaction. A recording starts. A residency rule changes mid-interaction. A payment mandate is invoked. A robot moves.

A fragmented architecture can connect every one of those events. It cannot natively prove the governed event across them. Transport moves the signal. It does not govern the authority. SSOAR governs authority across mutable interactions. That is the line between the two, and it does not blur at scale. It sharpens.

This matters for IoT. It matters more for the Internet of Everything, where the number of simultaneous governed transitions becomes the dominant cost. It matters for agentic AI, where the human re-grant is being intentionally removed. It may matter especially for quantum-networked systems, where identity, measurement, routing, and state transition become even less forgiving of after-the-fact reconstruction, because the state cannot be re-read without disturbing it.

The technologies will change. The primitive does not. A live interaction mutates under continuous governed authority, or it does not. When it does not, the failure is not a defect in the implementation. It is the absence of the primitive, showing up on schedule.

## **Closing**

Earlier internet primitives were discovered in a familiar pattern: failure first, name later. The failure came first and forced the name. SSOAR was named uniquely: constraint first, market failure later. The constraint was stated. Hermes-Echo embodied it and issued. The examiner enumerated the core in the allowance record: routing, streaming, and reply capture, all under a single session authority boundary, with no new session authority created. Warten extended the boundary into the pre-admission state.

The market did not create the primitive by moving toward it. The primitive was already there, named and issued, when the market started to move. Autonomy, Zero Trust, accessibility, sovereignty, runtime admissibility, provenance, and agentic action are converging on one requirement, and the requirement has a shape, and the shape has been on the record since before the convergence was visible.

A primitive is a primitive by function, not by proclamation. SSOAR is not primitive because the USPTO said so; it is primitive because the architecture cannot govern mutable live interactions without it. The record fixed the first-issued embodiment before the market named the

failure. The convergence shows the failure arriving. The architecture either composes without the constraint or it does not, and it does not.

The industry does not have to say the word for the primitive to be real. It was named before the market fully recognized the failure. The record now shows the failure converging on the name.