

ARIA Systems Breakdown

Critical information for anyone who is expected to work with an A-Type for an extended period of time or perform maintenance and systems management in the event the system encounters problems, the systems breakdown segments the many systems within the A-Type itself wherever possible, since every system is completely interconnected with every other system yet entirely modular and removable.



Hardware

Datacore

The Datacore has a superior retrieval time to the neural-stack despite its poor association system (which is tied in via metadata to the Neural Stack). It acts as a database, storing data such as encyclopedias, applications, star-charts and other declarative ("fact") memory. The Datacore is an external storage device, but so long as the A-Type has access to its Xtal, it is connected to the Datacore with minimal latency.

Translator

Acting as a translator in realtime for Quantum, Binary (two state computing), Quad (four-state computing) and the strange world of neural computing; the Translator is an immense feat of engineering and is absolutely critical to the operation of the A-Type. Without it, the A-Type is only able to communicate via the Xtal in debugging mode, to avoid risking damage to the unit.

Buffer

A highly optimized pathway of neural systems, the Buffer stores variables and considerations accessible by both the active and inactive psychology kernel component. The Buffer moves at around 300 to 1000 times the speed of the rest of the neural network, and is more expensive to produce and replace. A component of the CNS.

Activity Monitor

The Activity Monitor logs every processing step taken by an A-type and is crucial for debugging purposes, so as to track and locate the source of an error. It is not necessary for standard operation and can cause significant electrical drain during high-volume quantum operations (for which it is not designed). A component of the CNS.

Neural Stack

The main body of the CNS, the Neural Stack acts as the memory and neural processing store, blending both operations together into a seamless system.

Processors

A Quantum and Binary processor sizable computational power lay within the core of the A-Type system. The Quantum processor grants the A-Type an immense capacity for problem solving and logical deduction and the Binary processor an impressive calculatory capacity.

Signature

A Signature assures that the neural pathways have not been replicated from a stolen-backup, prohibiting the direct cloning of A-Types without highly specialized equipment, which must also be capable of duplicating the Signature which is hidden within the CNS. Without a Signature, an A-Type will experience an immense loss in performance and eventually shutdown. The signature is 100% self-sustaining and is a completely automated function.

Dataplexer

An optic brainstem, the Dataplexer is highly adaptable and can take on up to 256 8-way parallel optic communication ports with zero parallel clock-shifting or 1024 independent serial communication ports. The Dataplexer works in tandem with the CNS to dramatically increase the reaction time of the A-Type.

Neural Memory

Sensorial

Sensorial memory acts as a buffer for conscious experience and as a 100% accurate opinionless log of events within the last 48 hours; which may be exchanged with the swap partition of long-term memory to be parsed and saved. This allows the A-Type to provide an unbiased mathematical opinion and accurate judgement/estimation despite being a neurally-based system. It is also a key component of the Translator.

Short-term

Short-term memory is that which is lost in the event of a major system event, but is constantly changing

within the A-type. Short-term memory is constantly searching for patterns via the Recognizer and attempting to identify trends as to understand and anticipate events neurally, with the resources of a vast database and the computational powers of a starship behind it. In short, problems can quickly be identified long before they fall out of hand, and sporadic data can be randomly added from unrelated events to create truly dynamic assumptions and conclusions.

Long-term

Long-term memory is immensely complex and stored in a vast dynamic tagged database which is constantly being amended and added to with a complete back-log of every change ever made to the system. Long-term memory contains declaritive memory (facts such as events or stored data), opinions (swap) and procedural memory (tasks and learned skills) which are loaded as kernel modules and extensions.

Microkernel

The Microkernel is essentially a twin kernel with one twin performing the typical actions of a kernel and the other operating in tandem behind the scenes to pick up the pieces in the event of a malfunction. This allows the system to continue running with little or no loss in performance, barring the loss of the operation which could not be performed.

Recognizer

The recognizer is a system tied directly into the quantum processor which is constantly searching for and logging unusual patterns and attempting to decipher their meaning. The recognizer is not a consciously recognized or alterable process and is key for the function of the A-type.

Extensions

Extensions are effectively learned skills from observation which are constantly being amended. By making them modular, Extensions can quickly be traded out and exchanged for new extensions, evading the process of teaching the A-Type how to perform a complex operation.

Modules

The foundation of any Extension, a Module is a self-taught Extension and is applicable for everything from riding a bike to neurally controlling an array of weapon-pods. Like extensions, modules are modular and can be exchanged. An older module tends to be more effective than a younger module. Unfortunately, modules require a calibration time to align with an A-Types Response selection system to offer proper insight on how to use the Module effectively.

Memory

A system for recognizing and managing memory. A permanent component of the Kernel.

Sensoral

Tied directly into the problem solver and pattern recognition system, the sensorial system works closely with the neural components for creating new neural pathways.

Psychology/response selection

The most complex component of the A-Type, the Psychology is effectively what makes the A-type tick and gives it personality. This system can be calibrated to create a desired behavior but A-Types often insist on locking down the calibration method. For this purpose, a Psychology override exists in some models. Using the Psychology override is considered a violation of trust by the A-Type and can result in further complications.

Software

Operations performed on-top of other components.

Emulation

The A-Type can emulate a wide variety of systems, past and present, with hundreds of models loaded natively and capacity for many more. The only computer system that an A-Type cannot truly emulate are IES-based systems; in theory, however, even this system can be reproduced at native speed.

Software

Software directly compiled upon the A-Type is few and far between, but the facility to create it exists. One example is the creation of a subroutine for vanity which encourages the A-Type to wear clothing. Through software, mannerisms can be trained.

Modulus

Modulus is a method for the A-Type to “explore” a device electronically which it is unfamiliar with and map out every function based on complex estimates to create a control driver or Module for the system. This exploitation is usually performed through external cables, and these cables allow connection of

external components when it suits the A-Type's needs.

Optimization

In time, the Modulus learns about it's user preferences and recalibrates the device to best suit the user. This is considered a separate system as the A-Type also recalibrates its own body and software functions similarly. This function is limited, however, by the limitations of the organic body and hardware.

I/O Streams

Software can be taught to “hook” into events and act upon them (for example, if the user is dead, the A-Type can act accordingly).

Commands

Software can execute processor commands such as complex algebra (for example calculating FTL or similar actions). Commands are tied into Modules and extensions.

Actions

Software can execute physical actions based on complex dependancies. Actions can be as simple as “scratch yourself” to complex precision actions prescribing the exact balance and angle of every joint in the body (for example, with proper modification, sniping an object the size of a tennis ball from several kilometers away). Actions are tied into Modules and Extensions.

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