Earth–Luna Transport Comparison

Aegis Long-Hauler vs. SpaceX Starship

Category	Aegis Long-Hauler	SpaceX Starship
Primary Role	Reusable LEO ↔ LLO cargo & crew shuttle	Direct Earth ↔ Moon transport (cargo/surface)
Launches from Earth	No – remains in orbit	Yes – launches from Earth surface
Lands on Moon	No – supports landers like Short Hopper	Yes – lunar variant lands on surface (fuel only, no ascent stage)
Crew Capability	Yes – with attached capsule or shuttle	Yes – pressurized space for crew
ISRU Compatibility	Designed to integrate with ISRU refueling (LOX/LH_2 or LOX/CH_4)	Not yet ISRU-ready (CH_4 not viable with current lunar ISRU methods)
Refueling Model	Optional – supports tankers or orbital depot refueling	Requires multiple tanker flights in LEO for lunar delivery missions

Round-Trip Flow Comparison

Mission Phase	Aegis Long-Hauler	SpaceX Starship
Earth → LEO	Launch vehicle lifts cargo or crew capsule to LEO	Starship launches itself from Earth
LEO → LLO	Ferries cargo from LEO to LLO	Reaches LLO after complex orbital refueling operations
LLO → Surface	Requires separate lander (e.g., Short Hopper)	Lunar variant lands directly on surface
Return to Earth?	Yes – via capsule (crew) or booster (cargo)	Not typical – lunar variant may not return from surface

Design Philosophy

Aspect	Aegis Long-Hauler	SpaceX Starship
Modularity	Uses stackable systems: any launcher, any lander	Fully integrated – depends on launch system and landing design
Infrastructure	Supports orbital depots, station builds, and logistics networks	High operational complexity – refueling chain not yet proven