Mathematical Notation and Symbol Definitions
Dynamic Multi-Primitive Cryptographic Hopping Protocol (DMP-CHP) (DLHP)

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1 List of Symbols

Symbol	Definition
$\mathcal{M}$	The space of all possible plaintext messages.
$\mathcal{C}$	The space of all possible ciphertexts.
m	A specific plaintext message, $m \in \mathcal{M}$.
S	A random variable representing the secret (message).
SeqID	Integrity-protected monotonic sequence identifier for a protected unit (e.g., packet).
GhostSeqID	Monotonic sequence identifier reserved for decoy protected units (stateful counter stored at a node).
n	The total number of shares generated in the Holographic Entropy Dispersion (HED) scheme.
k	The reconstruction threshold for the HED scheme.
s_i	The i-th share of the secret, $i \in \{1, \ldots, n\}$.
Λ	The Cryptographic Orthogonality Library, $\Lambda = \{\mathcal{A}_1, \ldots, \mathcal{A}_N\}$.
$\mathcal{A}_t$	The active cryptographic algorithm at time step t.
$\mathcal{H}(\cdot)$	A cryptographic hash function (modeled as a Random Oracle).
PUF(c)	The response of a Physical Unclonable Function to challenge c.
K_{master}	Master secret material established during the initial handshake (e.g., from a KEM shared secret).
K_{session}	Session secret used for per-protected-unit derivation and protection (derived from K_{master}).
K_{hop}	Derived key used specifically for generating or ratcheting the hopping schedule (derived from K_{session} and optionally device binding such as PUF/TEE).
Hard($\mathcal{A}$)	The underlying mathematical hard problem of algorithm $\mathcal{A}$.
Class($\mathcal{A}$)	Hard-problem class label for algorithm $\mathcal{A}$ (e.g., structured lattice, code-based, isogeny-based).
$H(X)$	Shannon entropy of random variable X.
$H(X\|Y)$	Conditional entropy of X given Y.
θ_{threat}	The dynamic parameter vector representing the current threat level.

$\mathcal{E}_{env}$	The environmental entropy collected from network jitter/noise.
π^*	The optimal policy derived by the Federated Reinforcement Learning agent.
$\mathbb{F}_q$	A finite field of order q.