Ardor and Nxt Technical Feature Comparison

Functionality	Nxt	Ardor
Blockchains	Single chain	One parent chain with multiple child chains
Transaction tokens	The same token (NXT) is used for establishing the consensus and providing the security of the blockchain, as well as for the basic unit of value in all transactions	Only the parent chain token (ARDR) is used in the proof-of-stake consensus, and thus provides security for all child chains. Child chain tokens are used as transactional units of value only.
Transaction fees	Transaction fees are paid in NXT only, requiring users to always have NXT in their accounts.	On each chain transaction fees are paid in the native token (coin) of that chain. End users do not need to own ARDR tokens.
Features	Asset Exchange, Monetary System, Aliases, Messaging, Digital Goods Store, Voting System, Shuffling, Data Cloud, Phasing, Account Control, Account Properties	All these features are preserved in Ardor, and are available on each child chain. A child chain can optionally be restricted not to enable some features. The parent chain supports a limited subset of features, as it is intended to be used for consensus establishing only and not for everyday transactions.
Accounts	Each passphrase maps to a single account. Passphrases can't be changed, and there is no wallet file to store.	The same mapping of passphrases to account numbers is used as in Nxt. Accounts are global across all child chains, and an account can have balances in each of the existing child chain coins, as well as in Ardor.
Holdings	There is a single coin (NXT), and unlimited user-issued Assets and Monetary System currencies.	Each chain has its own coin. Assets and MS currencies can be issued on any child chain, and are available for trading globally. Assets or MS currencies can optionally be restricted* to some child chains only.
Trading	Assets and MS currencies can be traded for NXT only.	Assets and MS currencies can be traded on any child chain, with price denominated in the corresponding coin.
Coin Exchange	N/A	A new feature, Coin Exchange, allows trading of child chain coins to each other, and also to the parent chain coin (ARDR).

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Dividends	Asset dividends can be paid in NXT only.	Asset dividends can be paid in any of the child chain coins, by simply issuing the payment transaction on that child chain. Additionally, paying dividends in another Asset or in MS currency has been implemented.
Asset quantity	Assets are issued with a fixed number of shares. Shareholders can delete shares, but no new shares can be issued.	A new transaction type has been added, allowing the asset issuer to create new shares, in order to perform stock split or capital increase corporate actions.
Crowdfunding	Crowdfunding feature is available in the Monetary System, but the funds must be collected in NXT only.	Crowdfunding feature is available on all child chains, and on each child chain the funds are collected in the corresponding coin. Reserve and claim transactions must happen on the child chain the currency was issued on.
Shuffling	Shuffling of NXT, Assets, and MS currencies is available.	On each child chain, shuffling of the corresponding coin, or any Asset or MS Currency, is supported.
Aliases	Alias names are globally unique.	Alias names are unique within each child chain only.
MS Currencies	Currency codes and names are globally unique.	Currency codes and names are unique within a child chain only.
Pruning	Pruning is available for plain and encrypted messages, and for tagged data (data cloud feature). Pruned data are retrieved automatically on demand from designated archival nodes.	Pruning and retrieving of all prunable data is available as in Nxt. In addition, the child chain transactions themselves are designed to be prunable and will not need to be stored permanently or re-downloaded by every new node. The actual pruning of transactions will be implemented later.*
Transaction identifiers	Transaction IDs are 64-bit longs, and are globally unique.	The 64-bit transaction IDs are no longer guaranteed to be globally unique for child chains. 256-bit transaction hashes (sha256 digests) are used instead as transaction identifiers.

Functionality	Nxt	Ardor
Block generation	A "forging" process is used to create new blocks, with the probability of block creation dependent on the account NXT balance (stake).	The same forging algorithm is used as in Nxt, dependent on ARDR account balances only.
Bundling	N/A	A new process, "bundling", is used to group child chain transactions into a parent chain transaction ("child chain block"), which is then included in the parent chain. Any account can play the role of a bundler. The bundling process also performs the exchange of fees paid by users in child chain tokens into ARDR fees accepted by the block forgers.
Phasing	Transaction execution can be made conditional, subject to approval using various voting models.	Same voting models as in Nxt, but phasing is possible on child chains only. Approval transactions can be on a different child chain from the phased transaction, and the by-transaction voting model also supports linking to a transaction hash on a different child chain.
Composite Phasing	Not available, conditional transactions can use only one voting model at a time.	The new "Smart Phasing" feature allows the conditions for the execution of a phased transaction to be combined using AND, OR, and NOT Boolean operators, in a composite voting model. In this way declarative smart contracts can be built on top of the already available voting model primitives.
By-Property Voting Model	N/A	A new "by-property" voting model has been added, making the execution of a phased transaction conditional on its sender account having a specified property set. This can be combined with the new Asset Control feature, to allow only authorized or KYC-verified accounts to transact with some asset.
Account Control	Accounts can be restricted to use phasing only (mandatory approval).	Same as in Nxt, but accounts under phasing-only restriction cannot submit transactions on the parent chain, as those cannot be phased.

Functionality	Nxt	Ardor
Asset Control	N/A	The asset issuer can impose a phasing-only restriction on all transactions affecting the asset. This allows enforcing shareholder agreements that require shareholder approval, or board of directors approval, on all transactions with company shares.*
Peer Networking	HTTP based, also with WebSocket support, transmitting JSON formatted data between peers.	Completely re-written and optimized, using native Java sockets and binary messages between peers. Block and transaction propagation has been significantly improved, by exchanging and caching information about currently available blocks and transactions between peers and only propagating the missing data pieces.
API	HTTP query APIs, returning JSON formatted response.	Mostly unchanged, except: 1. A "chain" parameter has been added to each API that is child chain specific. 2. 64-bit long transaction IDs have been replaced with 256-bit hashes. 3. All prices and rates that were previously defined relative to the smallest indivisible holding amount ("QNT") are now defined relative to a unit of the holding (share).
Scalability	Transactions are stored in the blockchain permanently, and need to be re-downloaded and re-processed by every new node, which after months and years of operation becomes a significant bottleneck.	All child chain transactions will be possible to prune completely, without affecting blockchain security, thus allowing the blockchain size to be kept much smaller. A new node joining the network only needs to download the parent chain transactions, followed by the latest snapshot of the current system state.*

* Functionality marked with asterisk is planned to be implemented in a future Ardor release. All other functionality is already implemented and currently being tested on a testnet blockchain.